CAMPO 2040 REGIONAL TRANSPORTATION PLAN

Adopted May 11, 2015

Administrative Amendments
September 21, 2015

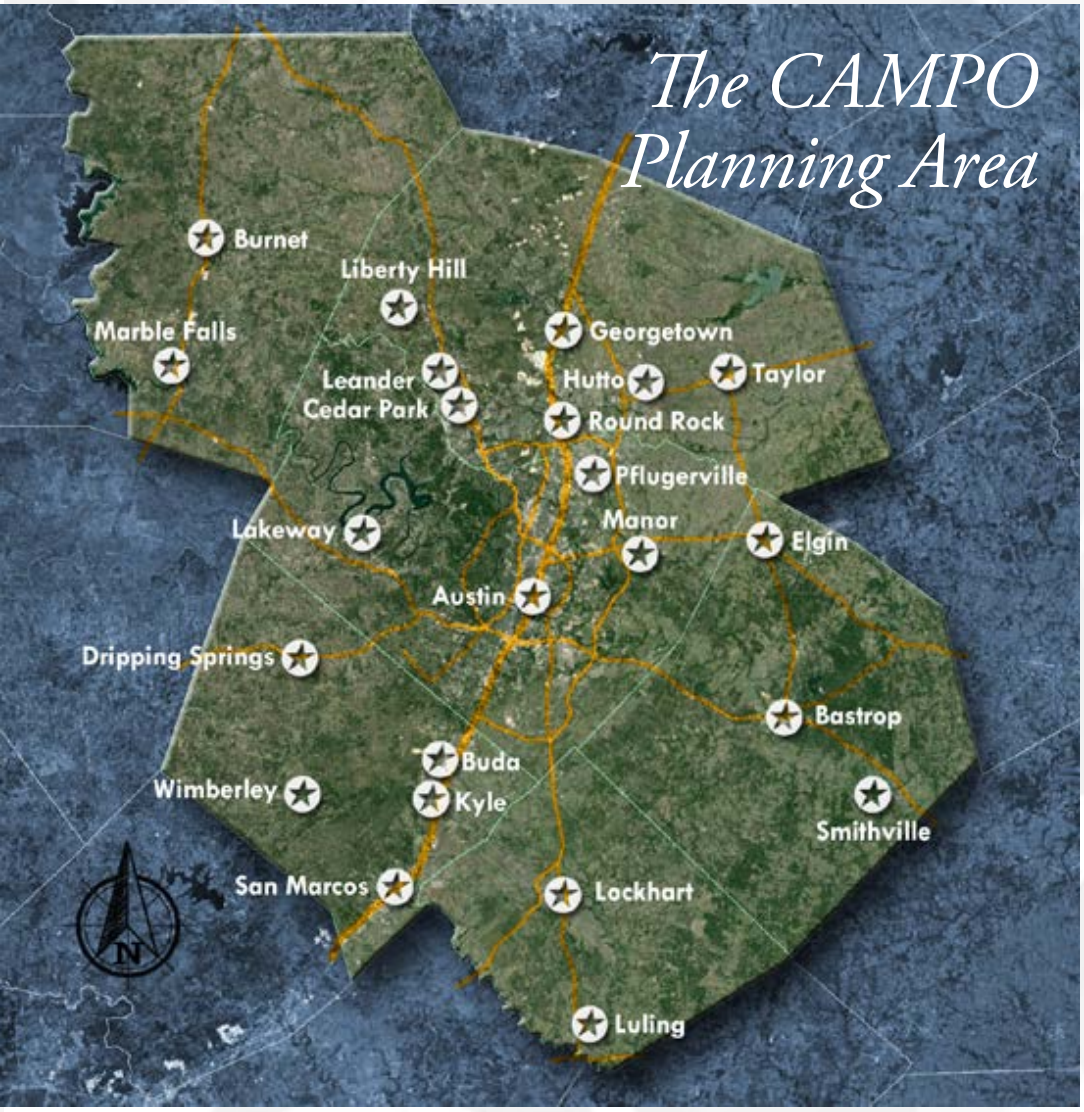
CAMPOTexas.org
CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION
Bastrop • Burnet • Caldwell • Hays • Travis • Williamson Counties

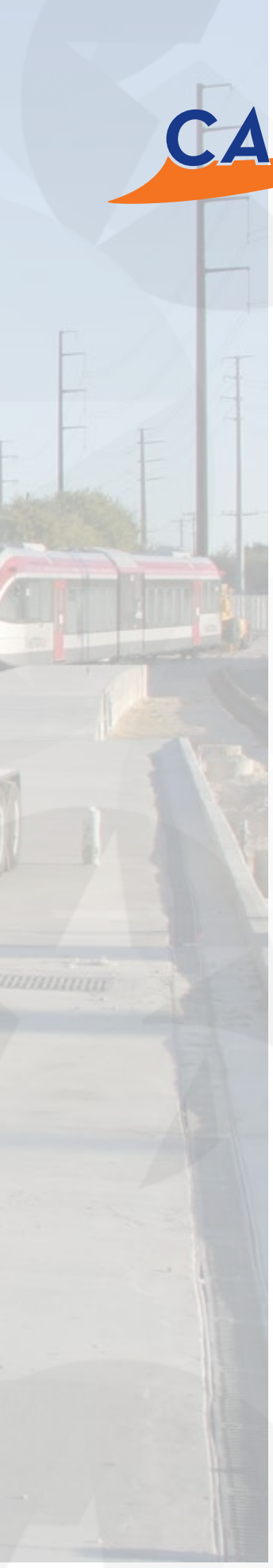
CAMPO

The Capital Area Metropolitan Planning Organization (CAMPO) is the Metropolitan Planning Organization (MPO) for Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson Counties. MPOs are designated for areas having a population greater than 50,000 as identified by the U.S. Bureau of the Census. CAMPO was established in 1973 and is governed by the Transportation Policy Board (CAMPO Board), which comprises regional and local officials.

CAMPO approves the use of federal transportation funds within the region, and produces both the long-range Regional Transportation Plan (RTP) and the short-range Transportation Improvement Program (TIP). Project sponsors are responsible for design and implementation of projects.

CAMPO coordinates regional transportation planning with cities and counties; the Capital Metropolitan Transportation Authority (Capital Metro); the Capital Area Rural Transportation System (CARTS); the Central Texas Regional Mobility Authority (CTRMA); the Federal Highway Administration (FHWA); the Federal Transit Administration (FTA); the Texas Department of Transportation (TxDOT); and other transportation providers in the region.


The CAMPO Planning Area
Burnet
Liberty Hill
Marble Falls
Georgetown
Leander
Cedar Park
Hutto
Taylor
Round Rock
Pflugerville
Lakeway
Manor
Elgin
Austin
Dripping Springs
Bastrop
Buda
Wimberley
Kyle
Smithville
San Marcos
Lockhart
Luling
N



CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Acknowledgements:

CAMPO Transportation Policy Board (As of May 11, 2015)

Commissioner Will Conley, Chair, Hays County
Commissioner Clara Beckett, Vice-Chair, Bastrop County
Mayor Steve Adler, City of Austin
Council Member Joe Bain, Travis County representative
Mayor Jeff Coleman, City of Pflugerville
Commissioner Gerald Daugherty, Travis County
Judge Sarah Eckhardt, Travis County
Council Member Sheri Gallo, City of Austin
Council Member Delia Garza, City of Austin
Mayor Daniel Guerrero, City of San Marcos
Council Member Ann Kitchen, City of Austin
Commissioner Cynthia Long, Williamson County
Mr. Greg Malatek, TxDOT, Austin District
Council Member Craig Morgan, City of Round Rock
Commissioner Alfredo Muñoz, Caldwell County
Judge James Oakley, Burnet County
Mayor Matt Powell, City of Cedar Park
Mayor Dale Ross, City of Georgetown
Commissioner Brigid Shea, Travis County
Council Member David Siebold, Capital Metro Board of Directors

CAMPO Technical Advisory Committee

Todd Hemingson (Chair), Rachel Clampffer (Vice-Chair), Pharr Andrews, Michael Aulick, Sabas Avila, Leon Barba, Anna Bowlin, Wes Burford, Terri Crauford, Bob Daigh, John Dean, Gordon Derr, Trey Fletcher, Dan Gibson, Will Guerin, Greg Haley, Brian LaBorde, Steve Manilla, Darwin Marchell, Dave Marsh, Ken May, Melissa McCollum, Amy Miller, Ross Milloy, Ed Polasek, Bob Van Til, Charlie Watts, and Chessie Zimmerman.

CAMPO Staff and Consultants

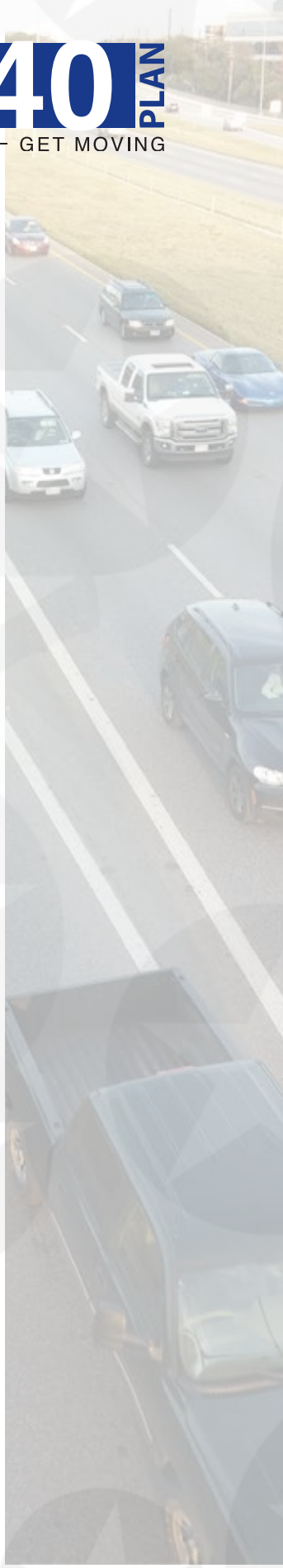
Staff: Ashby Johnson (Executive Director), Phillip Tindall (Assistant Director), Cathy Stephens, Daniel Yang, Lisa Weston, Lei Xu, Alex Kone, Julie Mazur, Michael Dutton, Shana Norton, Dan Dargevics, Greg Goldman, Geena Maskey, Katheryn Cromwell, Anteneh Yohannes, Theresa Hernandez, and Art Zamorano. Consultants: Parsons Brinckerhoff, Concept Development & Planning, and CDM Smith.

DISCLAIMER

The preparation of this report has been financed in part through grants from the Federal Highway Administration and Federal Transit Administration, US Department of Transportation, under the Metropolitan Planning Program [Section 104 (f) of Title 23, US Code]. The contents of this report do not necessarily reflect the official views or policy of the US Department of Transportation.

2040 PLAN
GET INVOLVED – GET MOVING

Contents



CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

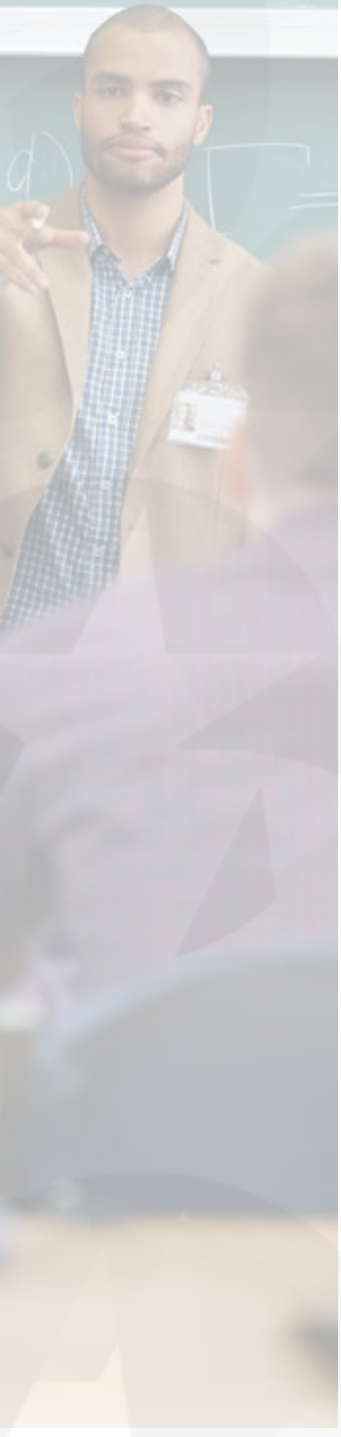
Table of Contents (continued)

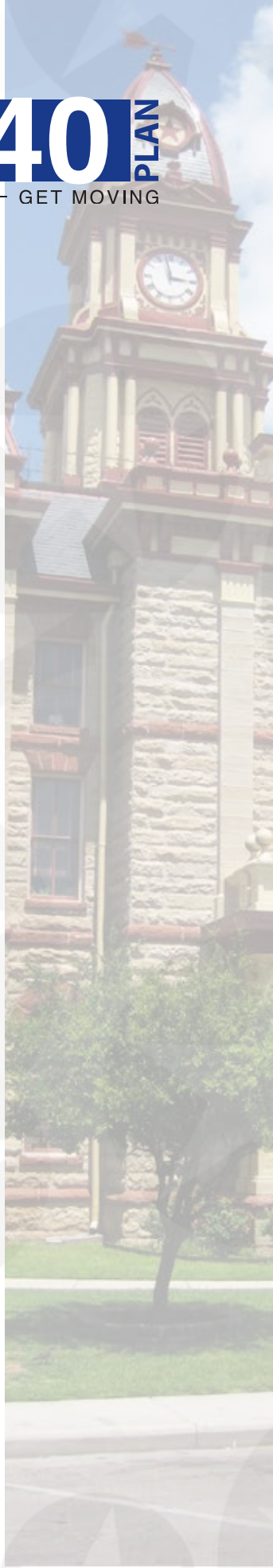
2040 PLAN
GET INVOLVED – GET MOVING

Table of Contents (continued)

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

List of Maps

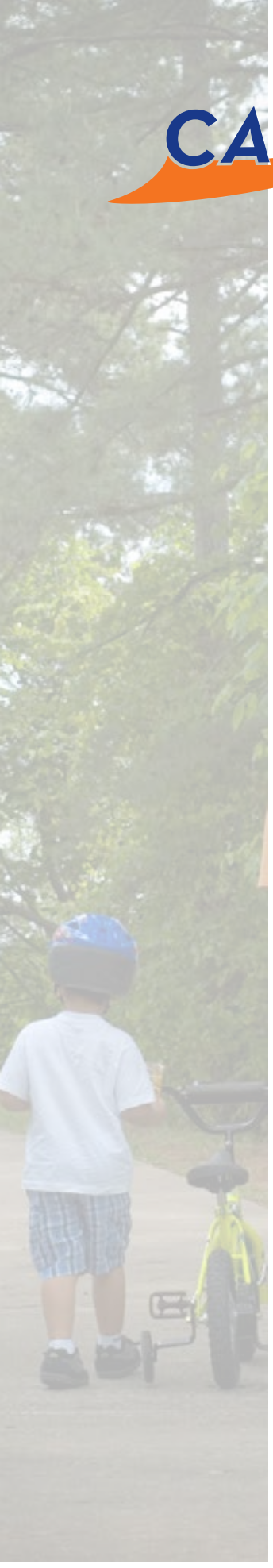




2040 PLAN
GET INVOLVED – GET MOVING

List of Maps (continued)

List of Figures



List of Figures (continued)

List of Tables

List of Tables (continued)

2040 PLAN

GET INVOLVED – GET MOVING

The CAMPO Transportation Policy Board adopted the following vision and goals for the *CAMPO 2040 Regional Transportation Plan*.

CAMPO 2040 Plan Vision:

Develop a comprehensive, multimodal, regional transportation system that safely and efficiently addresses mobility needs over time, is economically viable, cost-effective and environmentally sustainable, supports regional quality of life, and promotes travel options.

2040 PLAN
GET INVOLVED – GET MOVING

CAMPO 2040 Regional Transportation Plan Goals

Social Equity

Ensure that the benefits and impacts of the transportation system are equitably distributed regardless of income, age, race, or ethnicity.

Land Use and Transportation

Support coordinated planning of land use and transportation, where applicable.

2040 PLAN
GET INVOLVED – GET MOVING

CAMPO 2040 Regional Transportation Plan Goals

Safety & Security

Increase the safety and security of the transportation system.

Cost Effectiveness

Maximize the affordability of the transportation system in both the near and long term.


LBJ Library
SECOND RIGHT
SCHNEIDER
NATIONAL
KNIGHT
30787
1507

2040 PLAN
GET INVOLVED – GET MOVING

CAMPO 2040 Regional Transportation Plan Goals

Mobility and Access

Maintain and enhance mobility and access of goods and people within the region.

Connectivity

Improve connectivity within and between the various transportation modes for goods and for people of all ages and abilities.

2040 PLAN
GET INVOLVED – GET MOVING

CAMPO 2040 Regional Transportation Plan Goals

Economy

Maximize the economic competitiveness of the region.

Project Delays

Reduce project delays through the project development and delivery process and in the allocation of funds.

CAMPO 2040 Regional Transportation Plan Goals

Environment, Noise, and Neighborhood Character

Minimize negative impacts to environmental resources, reduce adverse noise impacts, and preserve neighborhood character.

Air Quality and Energy

Minimize air pollution and energy consumption related to the transportation system.

2040 PLAN
GET INVOLVED – GET MOVING

CAMPO 2040 Regional Transportation Plan Goals

Efficiency

Improve the efficiency and performance of the transportation system.

System Preservation

Ensure that the transportation system can be maintained and operated over time.


Safety

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Guiding Principles

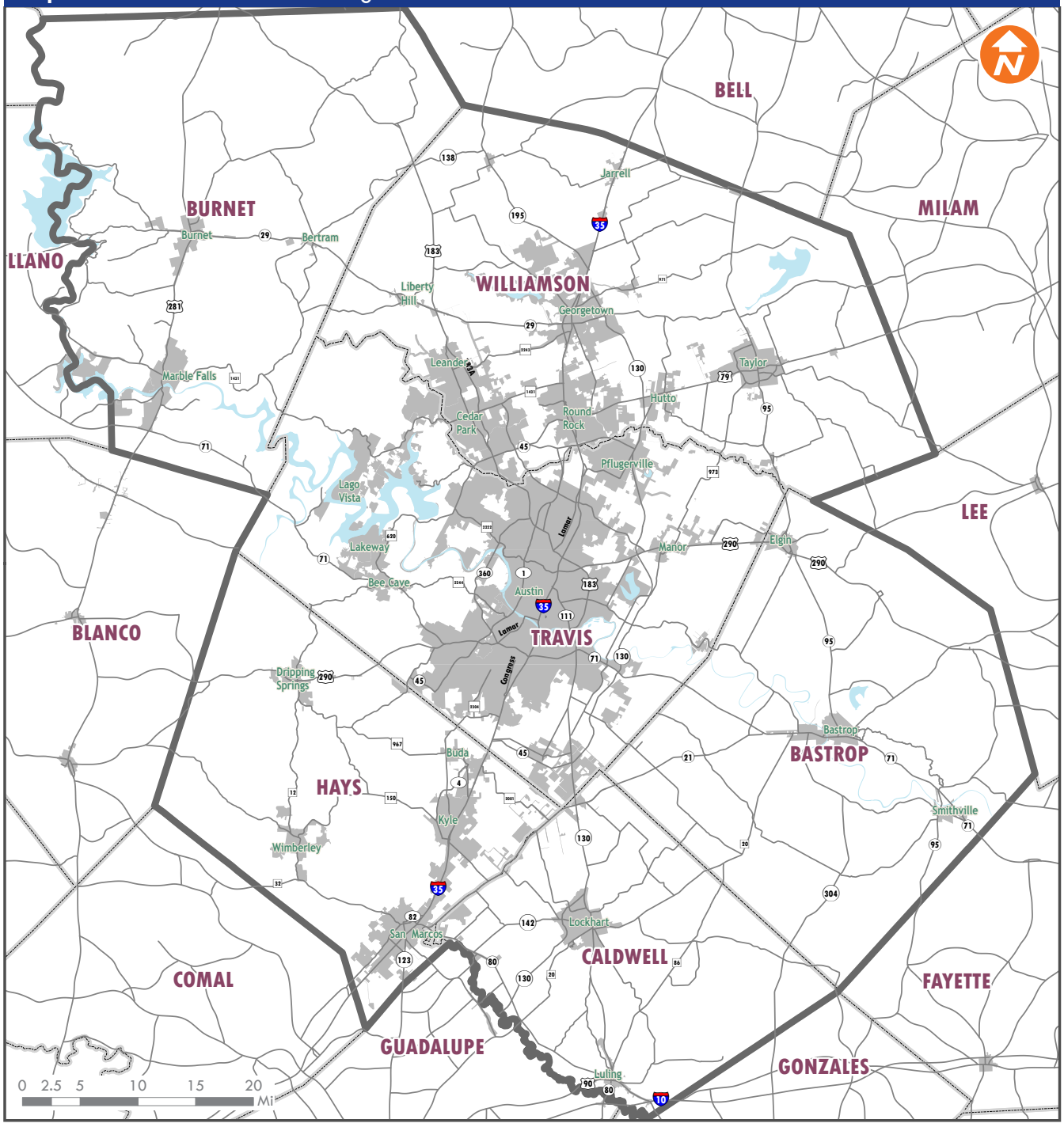
The six-county Central Texas region, composed of Bastrop, Burnet, Caldwell, Hays, Williamson, and Travis counties, is recognized for its progressive and inclusionary approach to problem solving and collaboration. In that progressive spirit, the Transportation Policy Board (TPB) of the Capital Area Metropolitan Planning Organization (CAMPO) affirms the following guiding principles for the development of its long-range transportation plans and Transportation Improvement Programs:

- **Equity and Fairness**. The TPB believes that every resident in the region should enjoy the mobility and economic benefits of transportation investments to the greatest extent possible while minimizing disproportionate impacts, especially on those who have been historically underserved. Towards that end, the TPB strongly encourages all recipients of federal, state, and/or local transportation funds to continue to reach out to Historically Underutilized Businesses (HUBs) and those categorized as Disadvantaged Businesses (DBEs) when soliciting contract work in any phase of project planning, development, and implementation.
- **Safety**. Every year our region suffers injury and loss of life due to crashes involving motor vehicles, pedestrians, and bicyclists. The TPB affirms that even a single loss is one too many, and makes safety its guiding principle. The TPB strongly encourages all recipients of federal, state, and/or local funds to continue making safety a major priority as it develops and implements transportation projects throughout the region.
- **Security**. Residents of the region should feel safe whether traveling on foot, bicycle, transit, or by car. The TPB strongly encourages all recipients of federal, state, and/or local funds to continue considering the implementation of security enhancing techniques such as lighting, sidewalks, bicycle lanes, and landscaping that enhances the built and natural environments.
- **Mobility**. The TPB is dedicated to considering all modes of transportation and travel demand management techniques to address the current and expected congestion on our transportation system. This includes bicycle and pedestrian projects, roadway and transit network expansions, travel reduction programs, and operational improvements to the roadway and transit elements.
- **Environmental Stewardship**. Our region is acclaimed for the visual beauty of its natural and built environments. Attention to the environment is a defining tenet of our regional culture. The Transportation Policy Board affirms its support for strong environmental safeguards that consider, maintain, and enhance the built and natural environments. The TPB strongly encourages all recipients of federal, state, and/or local transportation funds transmitted through the CAMPO transportation planning process to adhere to all federal and state laws concerning the environment in all stages of project planning, development and implementation. This includes an open and inclusionary public outreach process and an open project development process (NEPA).
- **Inclusion of Educational Stakeholders**. Our region is home to a wide range of educational facilities, with university and community college campuses, seminaries, and independent school districts. The TPB is committed to the inclusion of these educational stakeholders as vital partners in the regional transportation planning process.

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Map 1: Counties in the CAMPO Region



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Participating Counties in the CAMPO Region.mxd

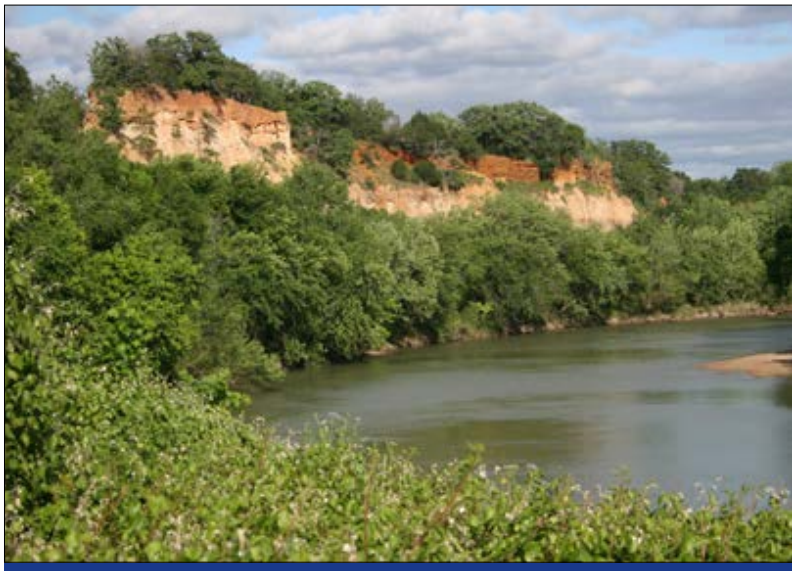
City Limits

Introduction

The CAMPO region is home to approximately two million people, respected universities, thriving businesses, and a beautiful natural environment. The Texas capitol building and most of the state's government agency headquarters are within its boundaries. The region also hosts hundreds of thousands of visitors annually. Keeping people and goods moving in this vibrant, fast-growing area is a complex task.

Regional partners must plan and design projects, secure funding, and build public support long before a road, bicycle path, or transit route opens to travel. The blueprint that guides this planning and investment is the *Regional Transportation Plan* (RTP).

As the region's Metropolitan Planning Organization (MPO), CAMPO must update the RTP every five years per federal law. Updates confirm the plan's validity. Updates also ensure consistency with current and forecasted transportation (and land use) conditions and trends. The update extends the plan 20 years into the future, at a minimum. The plan must include all regionally significant road and transit projects expected to be implemented by 2040.



Colorado River in Bastrop County, TX

The *CAMPO 2040 Regional Transportation Plan*

A Blueprint for Future Investment

A regional transportation plan must balance strategies for operating, managing, maintaining, and financing the transportation system. Development of the long-range plan allows communities to preserve land for future roads or transit, and to plan appropriate development for those road or transit corridors.

Federal long-range planning requirements provide opportunities and challenges for our region. The CAMPO region includes a mix of large urban, suburban, and rural communities; varied social and economic circumstances; and diverse environmental features. Producing a plan to address the needs of residents today, and in 2040, requires local and regional perspectives and an ongoing conversation with residents who depend on its success.

CAMPO developed the *2040 Plan* using the "3C" (cooperative, continuous, and comprehensive) planning process. Cooperation among the entities involved in regional transportation planning was essential in the production of this long-range plan. CAMPO worked with representatives from all over the region through its Technical Advisory Committee and Transportation Policy Board. Throughout the process meetings were held in cities all over the CAMPO planning area. This plan was not created from scratch, but instead was built on ideas developed during the creation of past plans providing a continuous planning process. As described in later sections of this plan, CAMPO implemented a comprehensive process including information from

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

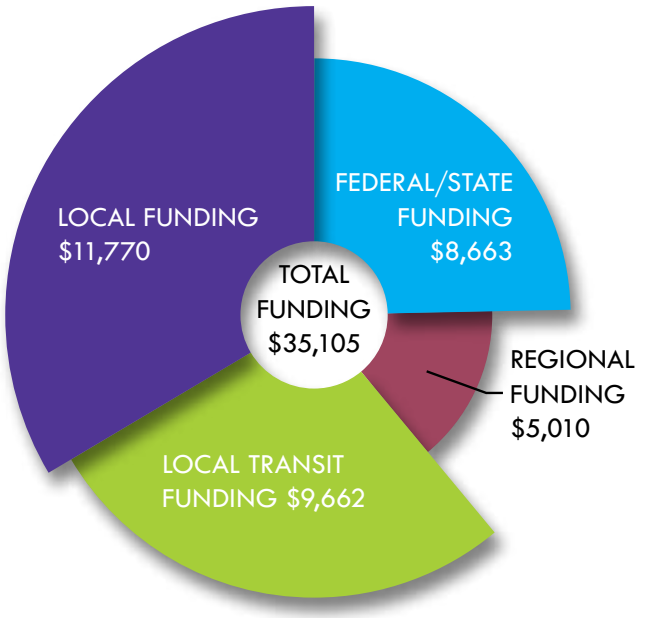


Figure 1: 2040 Revenue Forecast Summary (All figures in $ millions)

a variety of sources covering the many aspects that affect transportation planning.

The *CAMPO 2040 Plan* must balance needs with available resources. Resource constraints require trade-offs, coordination, and cooperation. The planning process must address environmental and equity considerations along with financial constraints (i.e., the estimated cost of implementing the plan must be covered by reasonably expected revenues). Chapter Four and Appendix I include a breakdown of the *CAMPO 2040 Regional Transportation Plan* revenue forecast figures summarized in Figure 1.

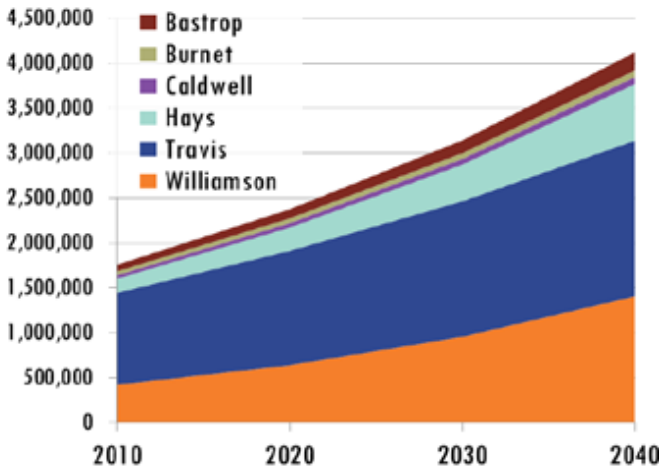
The most recent federal funding authorization is the Moving Ahead for Progress in the 21st Century Act, also known as MAP-21. It was passed in 2012 and includes a requirement that MPOs use performance measures to develop their plans. These measures are intended to be consistent with state performance measures. CAMPO is working closely with the Texas Department of Transportation (TxDOT) to ensure regional and state measures align.

Table 1: CAMPO Population Forecasts By County (2010-2040)

County/ Year	2010	2020	2030	2040
Bastrop	74,164	101,908	143,212	200,583
Burnet	42,739	53,114	64,268	73,673
Caldwell	38,019	49,478	63,441	77,903
Hays	156,966	257,643	406,051	628,309
Travis	1,024,531	1,273,260	1,508,642	1,732,860
Williamson	422,605	640,699	956,459	1,406,994
Region	1,759,024	2,376,102	3,142,073	4,120,322

Source: Texas State Data Center

Figure 2: CAMPO Population Forecasts By County (2010-2040)



Source: Texas State Data Center

CAMPO developed performance measures based on the *2040 Plan* goals. Table 2 shows how the performance measures align with these goals.

Our Growing Population

Measuring our Progress

The characteristics of a population affect the demands it places on a transportation system. The *CAMPO 2040 Plan* considers the travel needs of the region's current residents and anticipates the needs of future populations.

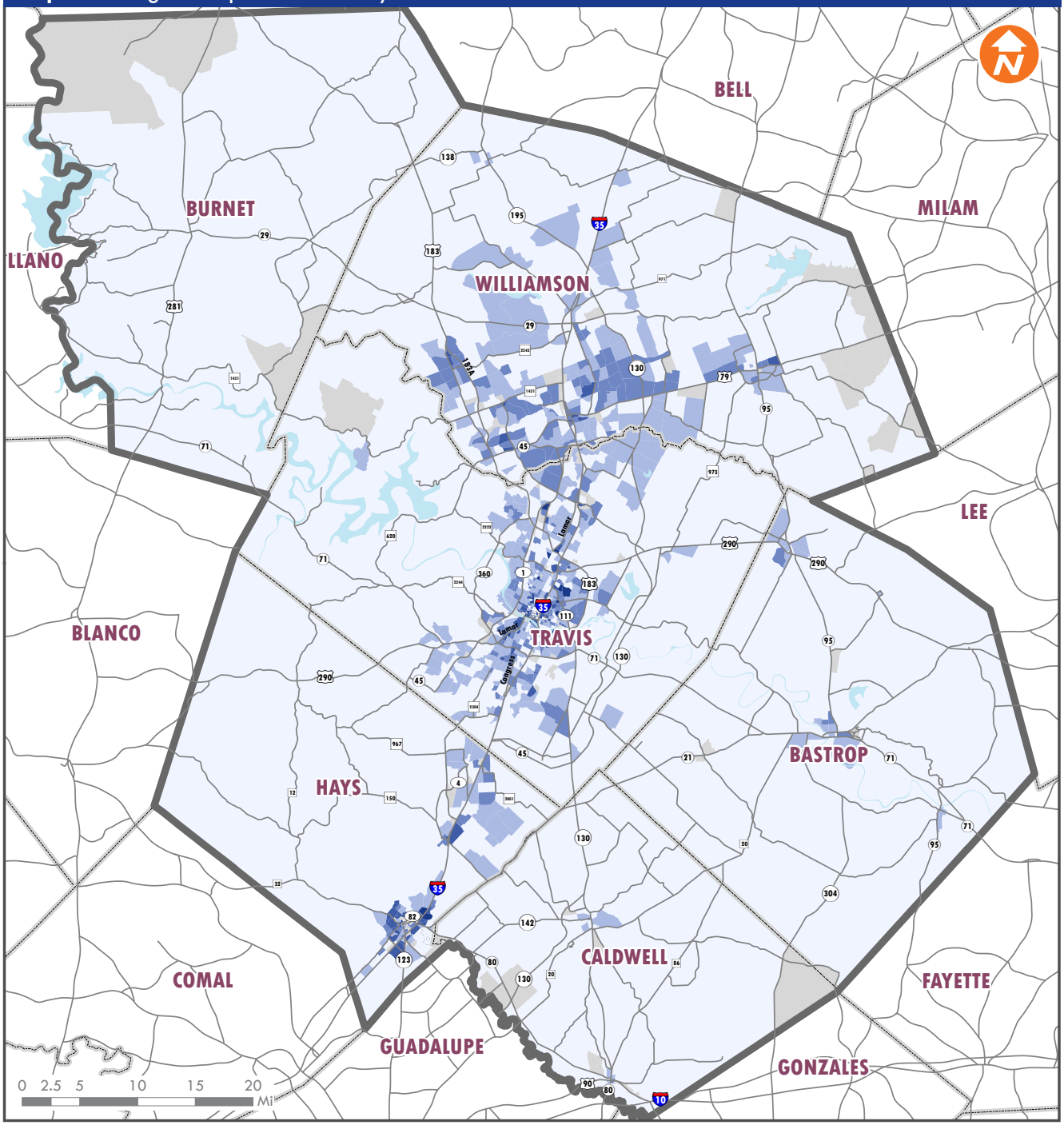
CAMPO uses population and employment forecasts, information regarding future land use,

Table 2: *CAMPO 2040 Plan* Performance Measures and Goal Alignment

		2040 Goals											
		Safety & Security	Mobility & Access	Connectivity	Efficiency	System Preservation	Economy	Land Use & Economic Development	Cost Effectiveness	Air Quality, Climate Protection & Energy	Environment, Noise, Neighborhood Character	Social Equity	Project Delays
System Effectiveness Measures													
1	Percent congested by time of day		★		★								
2	Vehicle hours of delay per person by time of day		★		★								
3	Vehicle miles traveled per person during 24 hours		★		★								
4	Average trip time in minutes by time of day		★		★		★						
5	Average freeway (limited access roadway) speed, by toll and non-toll facilities, by time of day for network and IH 35		★		★		★						
6	Average trip time in minutes to the airport from designated points in the region		★	★			★						
7	Average network speed by mode by time of day		★	★	★								
8	Number of trips per mode (vehicle toll, vehicle non-toll, bus, rail, bicycle, ped)		★	★	★								
Cost Effectiveness Measures													
9	Average private cost per trip by auto, transit, bicycle, and pedestrian modes						★						
10	Total cost of scenario per 10,000 person trips, by auto, transit (fixed and non-fixed), bicycle, and pedestrian modes								★				
Centers & Corridors Measures													
11	Employment within centers							★					
12	Population within a quarter and a half mile of a transit stop							★					
13	Square miles of redevelopable or vacant, low sensitivity land within a quarter and a half mile of fixed guideway transit							★					
14	Lane miles of roads and fixed guideway transit adjacent to and intersecting centers							★					
15	Lane miles of roads and fixed guideway transit connecting centers							★					
Environmental Impacts Measures													
16	Total VOC									★			
17	Total NOx									★			
18	Total greenhouse gas emissions (CO, CO2, CH4)									★			
19	Lane miles of roads and transit crossing high environmentally sensitive areas										★		
20	Fuel consumption per capita (trial measure – consider emerging fuels as data becomes available)										★		
Social Equity Impacts Measures													
21	Percent of EJ population within a quarter and a half mile of transit											★	
22	Ratio of EJ average trip length and non-EJ average trip length in miles and minutes											★	
23	Miles of improvements to high crash corridors	★											

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Map 2: Change in Population Density 2010 to 2040



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Change in Population Density 2010 to 2040.mxd

Change in Population Density (Persons per acre)

- 0
- =>0 and <2
- =>2 and <5
- =>5 and <10
- =>10 and <20
- =>20

Bodies of Water

and an application called the Demographic Allocation Tool to forecast the spatial distribution of future growth (see Map 2).

Population Size

The CAMPO region's population tripled between 1980 and 2010, growing from 585,000 residents in 1980 to 1,716,300 residents in 2010 (see Figure 2). All six counties experienced growth, with Travis and Williamson counties experiencing the largest increases in total population. Forecasts suggest the population will more than double by 2040 (see Table 1). This growth reflects the region's reputation as a desirable place to live, and its history of fostering a robust economy. Rapid growth, and an unwillingness to expand the system during prolonged population growth, negatively affects the region's transportation system.

Natural Growth V. Migration

CAMPO developed its population projection for the *2040 Plan* with information from the Texas State Data Center (SDC). The projection uses natural population growth rates (which are the same for all counties in the CAMPO region) and county-specific calculations of net migration (these vary widely by county). The SDC provides population projections based on different migration rates: the same as the past ten years (Scenario 1.0), one-half of the rate of the past ten years (Scenario 0.5), and no net migration (Scenario 0.0 – natural growth only).

> Between 1990 and 2010 the nation grew by 24 percent, Texas by 48 percent and the CAMPO region by 100 percent.

The *CAMPO 2040 Regional Transportation Plan* uses Scenario 1.0 for future population growth. Comparing Scenario 1.0 to Scenario 0.0 indicates the majority of growth projected in the CAMPO region will be from migration (see Table 3).

Broader Population Characteristics

Population characteristics reflect the CAMPO region's role as home to:

- **Texas State Capital**
  The business of the State of Texas keeps a regular flow of visitors coming to the capital area, with a noticeable increase during the state's biennial legislative sessions. State government jobs are a significant employment sector, and those workers typically commute during peak congestion hours.
- **Major Universities**
  University populations create unique travel patterns throughout the year. Some of the university-related variables include: the fall arrival of students; the irregular nature of class schedules; the departure of students for holiday and summer breaks; and the additional activities surrounding sports events (see Table 4).

  Many students come to the CAMPO region for higher education and remain here after their school days are over. As a result, the region boasts a large cohort of young, college-educated residents. These young, well-educated residents tend to make more recreational trips and are more likely to live in areas where they can easily walk or bicycle to desired destinations.
- **Thriving Business Community**
  The State of Texas regularly fosters activities that support a robust economy. The State and local governments often encourage major employers to

Table 3: Portion of the 2040 CAMPO Region Growth Projected to Come from Natural Growth Versus Migration

County	Portion from Natural Growth	Portion from Migration
Bastrop	7.6 %	92.4 %
Burnet	5.6 %	94.4 %
Caldwell	12.4 %	87.6 %
Hays	13.2 %	86.8 %
Travis	32.8 %	67.2 %
Williamson	7.1 %	92.9 %
CAMPO Region	16.1%	83.9 %

move to the CAMPO planning area by offering incentive packages. The CAMPO region has a vibrant high-tech sector, which is a good fit for an educated workforce. This sector tends to be proactive in championing alternative commutes and work schedules.

Table 4: Places of Higher Learning

Places of Higher Learning in the CAMPO Region	Student Population	Date of count
University of Texas at Austin	51,000	2014
Austin Community College	40,159	2012
Texas State University	36,790	2014
Saint Edward's University	4,000	2014
Concordia University – Austin	2,500	2014
Southwestern University	1,535	2014
Huston-Tillotson College	900	N/A
Seminary of the Southwest	135	2011
Austin Presbyterian Theological Seminary	126	2011

- **Major Tourist Destination** Every year, the CAMPO region receives hundreds of thousands of visitors from all over the world. Many come to attend the region's iconic festivals and events. Others come to experience Texas history firsthand, or to enjoy the region's many natural amenities. Four state parks are located in the CAMPO region, with McKinney Falls State Park less than ten miles from downtown Austin.

Visitors use the transportation system very differently than do residents. They often need transportation for site-specific activities

Events such as the United States Grand Prix at the Circuit of the Americas attract many visitors to the region.

(e.g., music festivals and sports events) that draw huge crowds. Event managers have to plan for thousands of attendees to get to and from venues that may not routinely handle that many people.

Balancing the travel needs of residents, businesses, institutions and visitors is a contributing factor in the development of the *CAMPO 2040 Plan*.

Our Growing Jobs Base

As population grows, employment typically increases. Analysis based on data from the Bureau of Labor Statistics suggests that the economy will continue to produce new jobs and that the employment base of the six-county area will increase 200 percent to 2.32 million jobs by 2040 (see Table 5, Figure 3, and Map 3).

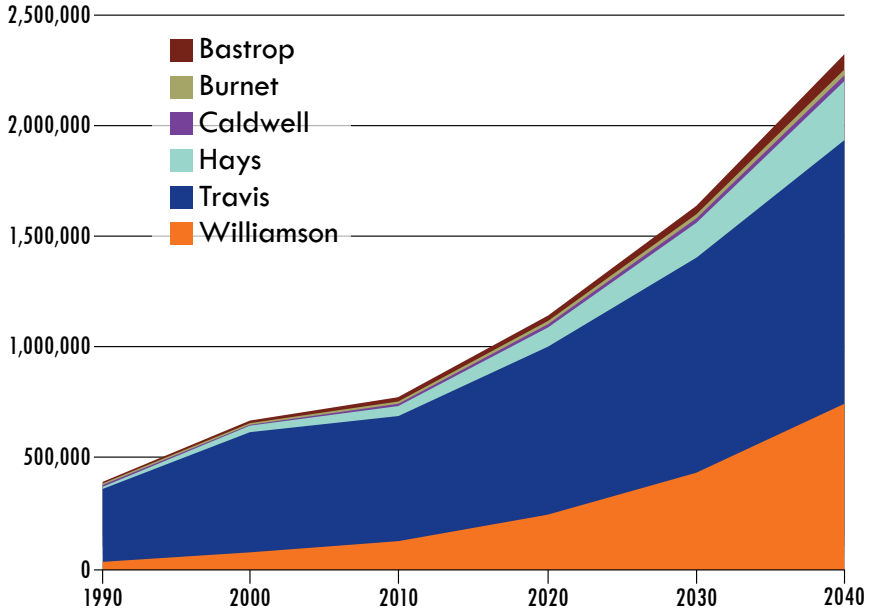
The capital area has one of the strongest regional economies among major metropolitan areas nationwide. Job growth during 2013 included 37,100 net new jobs. This amounted to a growth rate of 4.5 percent. Private sector jobs made up a vast majority of the growth with a gain of about 34,500 net new jobs. Most of the growth is in commercial sectors of the economy reflecting, in part, increased population.

Continued growth in population and employment will translate into increased potential demand on the regional transportation system. The actual impact of this potential demand will depend on how and where people live, work, and travel within the region.

Table 5: CAMPO Employment Forecasts By County (2010-2040)

County/Year	2010	2020	2030	2040
Bastrop	16,011	25,538	40,858	64,187
Burnet	12,174	16,816	22,385	27,996
Caldwell	7,224	10,722	15,442	21,034
Hays	48,052	89,505	157,832	270,173
Travis	564,517	760,518	970,962	1,195,673
Williamson	126,808	241,351	433,563	745,707
Region	774,786	1,144,451	1,641,041	2,324,769

Figure 3: CAMPO Employment Forecasts By County (2010-2040)

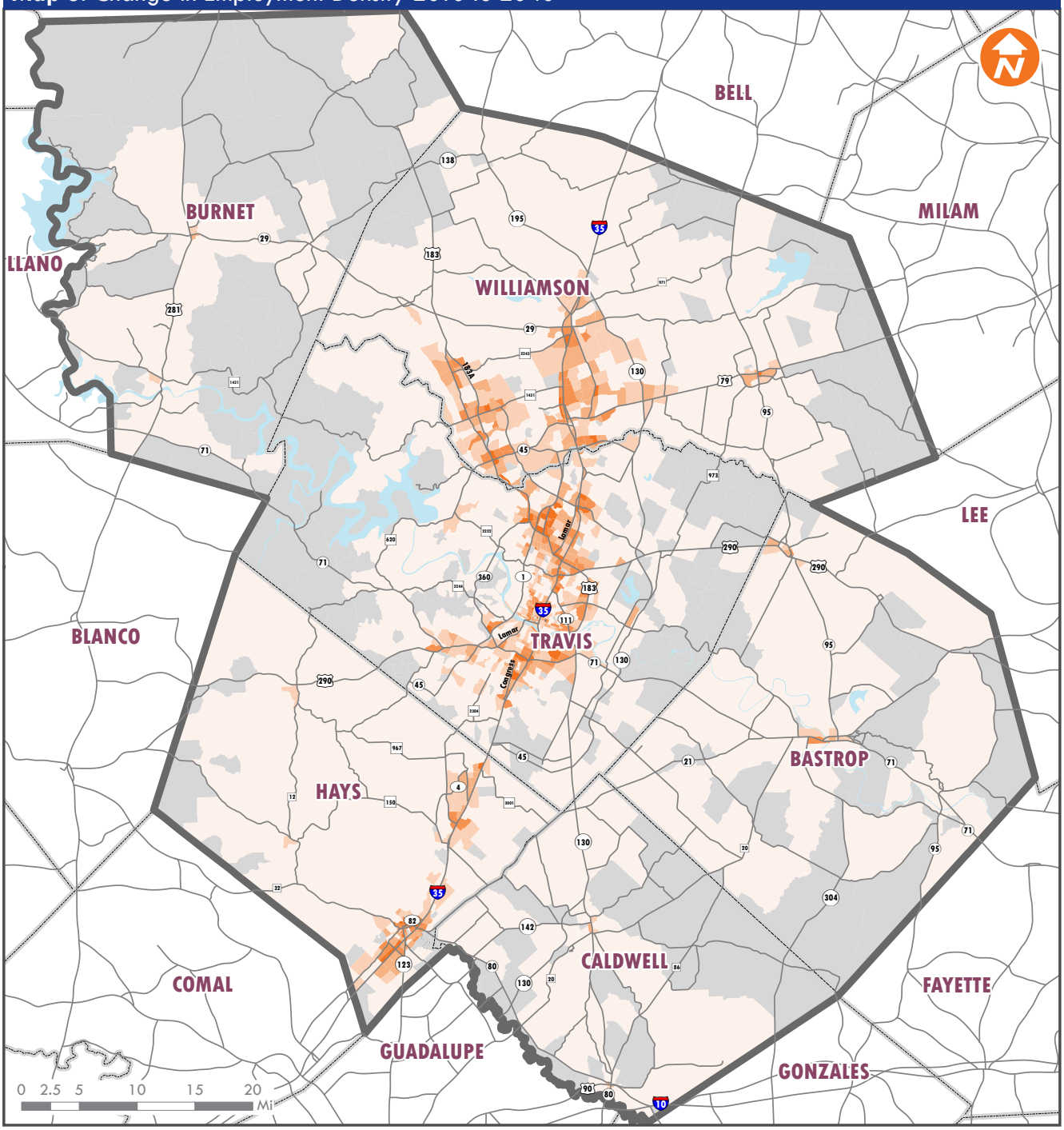


Allocating Future Growth

CAMPO uses its Demographic Allocation Tool to predict where future population and employment might be located. This tool uses parcel-level data to create an attractiveness rating for each parcel. Through an iterative process, CAMPO's Demographic Allocation Tool allocates households and employment from the county-level control totals to the parcel level in a manner that reflects local land use and density goals, as well as the existing or forecast transportation system. The tool allocates population (total households and total employment), while staying within the established forecast and density goals.

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Map 3: Change in Employment Density 2010 to 2040



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Change in Employment Density 2010 to 2040.mxd

Change in Employment Density (Employees per acre)

- 0
- >0 and <2
- >2 and <5
- >5 and <10
- >10 and <20
- >20

Bodies of Water

CAMPO worked with municipal planners to define total target growth, maximum units per parcel, and density goals. CAMPO uses local land-use plans and/or adopted zoning ordinances in the planning process when these are available. The tool aggregates parcel-level allocation to Traffic Analysis Zone (TAZ) level for use in the travel demand model (TDM). The TDM uses parcel-level population data for the forecast year to determine mode choice. The Demographic Allocation Tool establishes a direct link to local land-use plans at the parcel level; it makes the connection between land use and transportation explicit for the TDM process.

Downtown Bastrop is one of the Centers in the region.

Centers in the Region

There are 59 Centers in the CAMPO region. Centers generally feature a mix of land uses that support transit, bicycling, and walking. This optimizes peoples' ability to take fewer and shorter vehicle trips, reducing vehicle miles traveled (VMT). Reducing VMT is one of the cornerstones of efficient transportation system use and can alleviate some demand for infrastructure investment. This is especially important given the relative scarcity of transportation funding sources.

CAMPO uses local land-use data to inform regional planning efforts around regional Centers. Centers are officially designated by the CAMPO Transportation Policy Board. Locally-approved planning districts are:

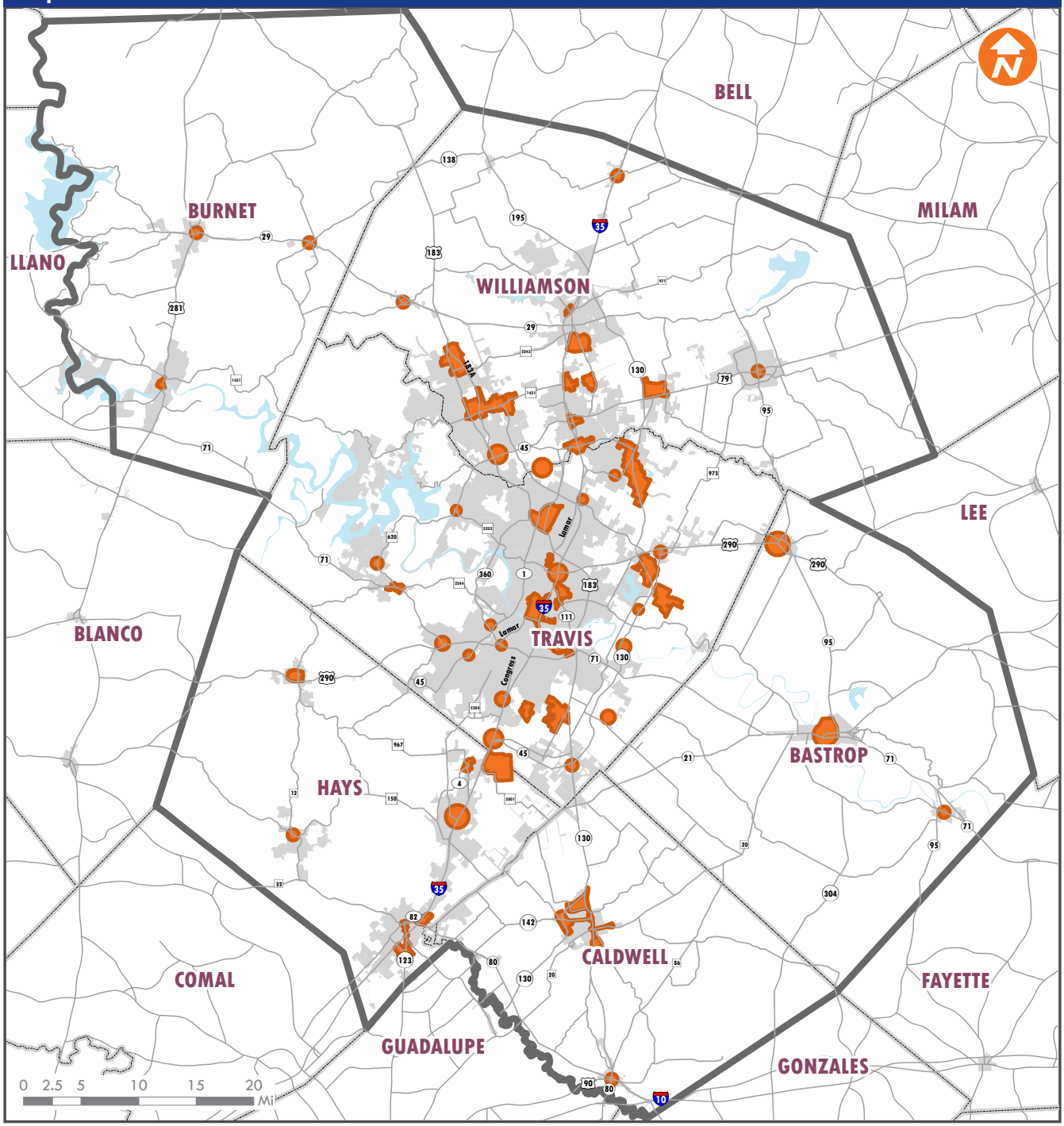
- Built and planned mixed-use environments that possess the density, diversity, and design attributes to reduce vehicle-miles traveled and support transit, bicycling, and walking;
- Frameworks for regional multi-modal transportation corridor and network planning;
- Consistent with CAMPO's Centers guidelines for type of Center, activity density, transit service, and scale, as well as local government plans; and,
- Supported by their local jurisdictions and other implementing agencies.

The CAMPO-designated Centers are shown on Map 4. Chapter Three includes more information about definitions and guidelines for Centers.

Texas State Capitol, Austin

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Map 4: CAMPO Centers



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\CAMPO Centers.mxd

2040 Plan Centers
City Limits

Public Involvement Process

Public Involvement Goals

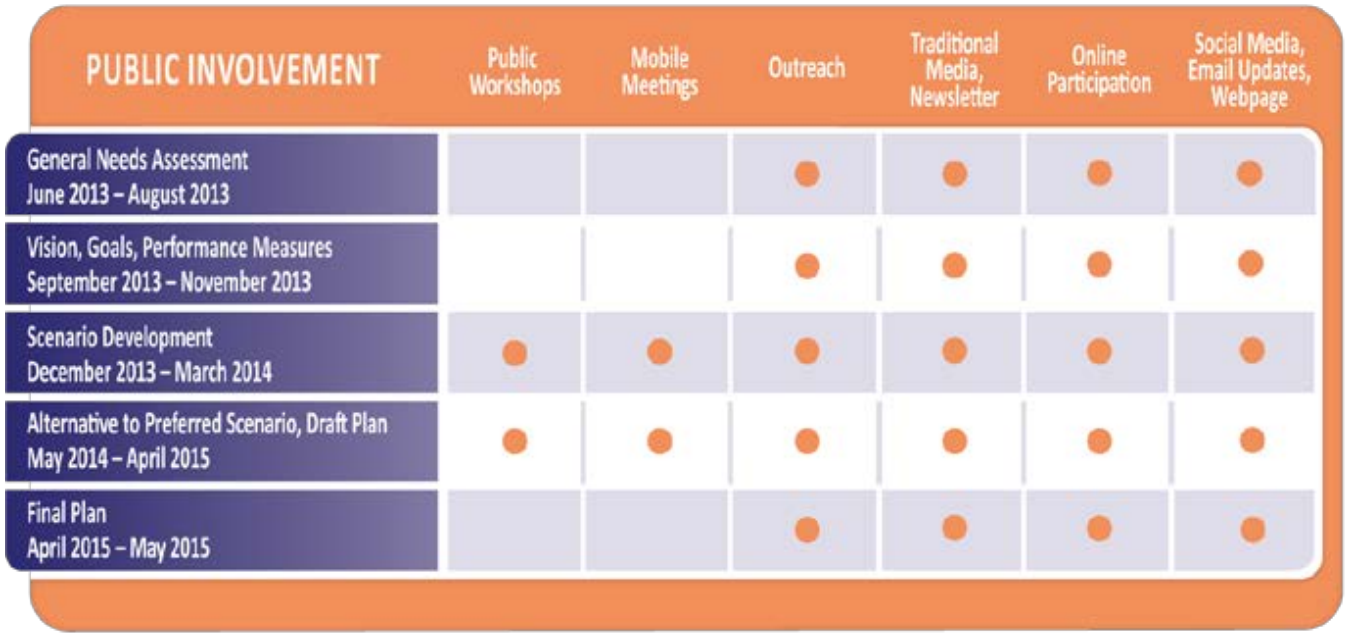
One of the first steps CAMPO took to develop the *2040 Plan* was to identify public involvement goals. These goals guided the public involvement process to ensure the successful development of a long-term, well-supported, sustainable plan. CAMPO developed the following goals:

- Create public awareness of the *2040 Plan* and convey the importance of public involvement in the planning process;
- Conduct inclusive outreach with the objective of receiving input from a diverse representation of the region's population and from all portions of the study area;
- Reach new people not previously involved with CAMPO;
- Make a specific outreach effort to Environmental Justice populations, both low-income and minority;
- Maintain an open and transparent educational process to further public understanding of the purpose, timeframe, and progress of the planning effort;
- Provide multiple and easily accessible opportunities for the public to become involved;
- Collect and document meaningful input from the public and explain how this input was used to shape and direct the *2040 Plan;* and,
- Build understanding and support for the final *2040 Plan.*

Nearly 7,500 people participated in public meetings and outreach activities.

CAMPO engaged regional stakeholders throughout the *2040 Plan's* development, as illustrated in Figure 4.

Figure 4: *CAMPO 2040 Plan* Public Participation and Planning Timeline



CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

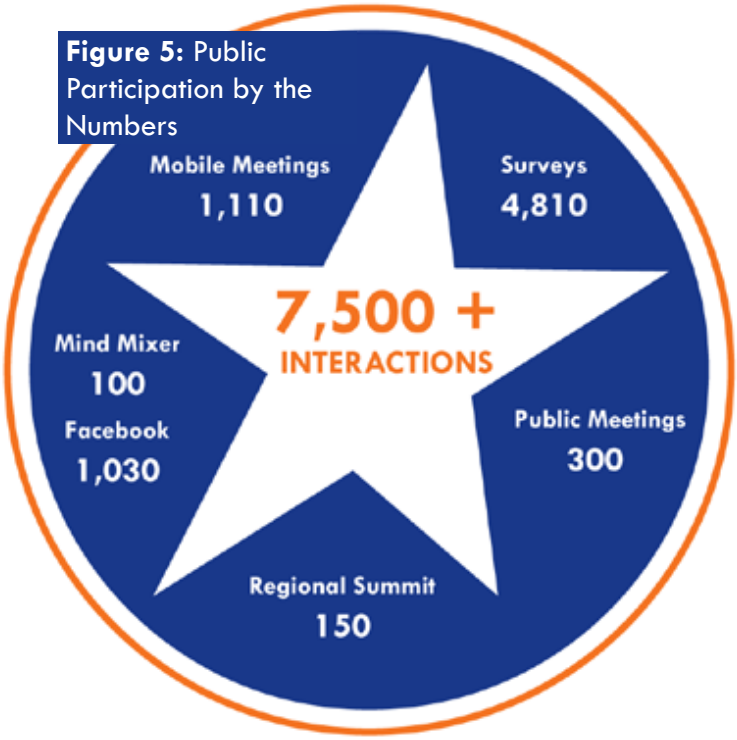
Diverse Participation

A wide-ranging group of stakeholders, representing both a large geographic area and a diverse demographic population, expressed interest in CAMPO and the *2040 Plan*. CAMPO collected contact information from a variety of groups, ranging from chambers of commerce to local civic groups to business and community organizations. CAMPO maintained contact with these groups throughout the planning process to boost public participation in development of the *2040 Plan*.

Environmental Justice Populations

CAMPO conducted additional outreach to involve Environmental Justice and Limited-English Proficient populations. This outreach included a Spanish translation of the first and third surveys. In addition, organizations that serve Spanish-speaking populations received outreach information via social media, telephone, and email for distribution to their members.

Figure 5: Public Participation by the Numbers



A range of stakeholders participated in the development of the *CAMPO 2040 Plan*.

Organizations included in this outreach were:

- Austin Latino Theater Alliance;
- Center for Mexican American Cultural Arts;
- Centro Cultural Hispano de San Marcos;
- Despierta Austin;
- El Buen Samaritano;
- Greater Austin Hispanic Chamber of Commerce;
- Hispanic Austin Leadership;
- Hispanic Voters Count in Austin;
- Hispanic Women's Network;
- Hispanos Network Austin;
- La Jefa Austin;
- Mexic-Arte Museum of Austin; and,
- Ministerio en Español de Calvary Austin.

CAMPO placed advertisements through Univision's social media sites and in the *El Mundo* and

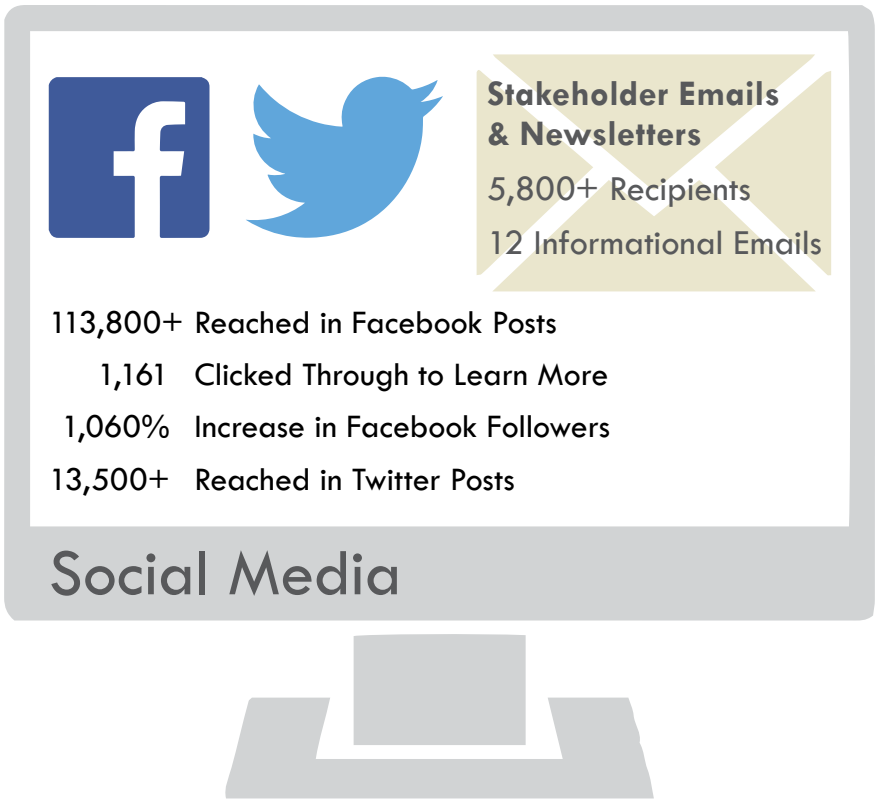
La Prensa newspapers to promote participation in public meetings. Univision aired a Spanish-language interview with a project team member to explain opportunities for CAMPO *2040 Plan* development participation. The public involvement team gathered input at Mobile Meetings in locations convenient to Environmental Justice populations.

Additional Outreach

CAMPO Website: CAMPO launched a new website on campotexas.org, which coincided with the kickoff of the CAMPO *2040 Plan*. The new, user-friendly website provided information on all CAMPO projects, and highlighted opportunities for public participation. A *2040 Plan* webpage contained all current planning and outreach information. The website home page and all internal pages promoted a link to the *2040 Plan* page. Public meeting details appeared on the home page and the calendar page. Both the draft and final versions of the *2040 Plan* were posted there. The final version remains available on the website for viewing or for download.

Public input, collected over two years, shaped the transportation investments outlined in the *2040 Plan*.

Figure 6: CAMPO used online outreach methods like social media and eblasts to reach participants on their mobile devices.



Social Media: The CAMPO Facebook and Twitter accounts complement traditional public information and engagement methods, such as email, newsletters, and print advertising. Social media enables CAMPO to reach a broader and more diverse group of stakeholders and played a significant role throughout the development of the *2040 Plan*. CAMPO conducted a vigorous social media campaign from February through April 2014, and again from March to April 2015, to promote public meetings and participation opportunities (see Figure 4).

Stakeholder Emails and Newsletters: CAMPO sent email updates throughout the planning process to share participation opportunities, progress reports, and results of input collected. CAMPO maintains an outreach database of all email addresses collected during the planning process.

MindMixer: From October 2013 to May 2014, CAMPO used the online engagement tool MindMixer, which allowed the public to provide feedback and generate ideas about how to improve the transportation

system through 2040. A total of 101 users submitted 69 ideas using this platform. MindMixer was used to ask such questions as, "How can we create a more connected community," "What is your vision for transportation," and "With regard to transit, which options are most important?"

Public Involvement Activities

REGIONAL MOBILITY SUMMIT: The planning process began in May 2013 with a regional mobility summit for community and transportation leaders. More than 150 attendees shared their input on transportation issues and needs via polling and general comments. Attendees identified the following three areas as their primary focus for regional transportation efforts:

- Multimodal solutions;
- Alignment of land use and transportation; and,
- Removal of traffic bottlenecks.

Survey #1: In the summer of 2013, CAMPO conducted an online survey on the *2040 Plan* vision and goals as well as general transportation needs. Approximately 1,900 people responded to the survey, which was conducted in both English and Spanish. Thirty-nine percent of respondents reported that the survey was their first involvement with CAMPO.

Participants identified the top three regional transportation challenges as: 1) Too many congested roads, 2) Lack of funding for transportation projects, and 3) Not enough public transportation options. A majority of respondents also felt the vision and goals were appropriate and that improving efficiency should be a primary goal for the region. Figure 7 shows additional topics of interest.

Mobile Meetings: CAMPO reached out to community organizations and groups and asked each of them to host a Mobile Meeting. These meetings provided an opportunity for team members to attend an organization's regularly scheduled meeting, give a presentation, and collect input from its members.

Respondents to Survey #1 identified the following three priorities for regional transportation efforts:

- Removal of traffic bottlenecks;
- Multimodal solutions; and,
- Increasing traffic management (signal timing, accident removal).

The first round of Mobile Meetings was held from October 2013 to April 2014. The purpose of the first round of meetings was to provide an overview of the *2040 Plan* process, share visions and goals, and collect input on general transportation needs. Team members conducted a mapping exercise that allowed attendees to identify their top three concerns for highways, local transportation, public transportation, and bicycle and pedestrian facilities.

CAMPO staff also attended 11 public meetings and events held by other agencies to distribute project information and to promote involvement in the planning process.

Figure 7: Survey #1 - Public Priorities (Note: The larger the topic font, the more people submitted it for consideration.)

The second round of Mobile Meetings was held from February to April 2015. The purpose this round was to give an overview of the *Draft 2040 Plan* including vision and goals, highlights, projects and other strategies, to promote public meetings/ opportunities to get involved, and share feedback on the plan. At each meeting, a presentation was made followed by a question and answer session. Attendees were able to share feedback by completing a comment card or emailing comments to CAMPO staff.

Public Meetings: CAMPO held two rounds of public meetings in the development of the *2040 Plan*. CAMPO held the first round of public meetings in March and April 2014. These meetings coincided with the Scenario Development phase of the planning process. CAMPO hosted six of these meetings—one in each county of the CAMPO planning region—to provide easy accessibility throughout the region. CAMPO used multiple outreach methods to promote these meetings, including direct mail, media advertisements and media releases, email notifications, coordination with community organizations, social media, and targeted Environmental Justice outreach.

Respondents to Survey #2 frequently selected three IH 35 projects as priorities for improvement.

The meetings began with an update on the status of the *2040 Plan*. Attendees could then provide input on priorities and specific projects via a participatory budget exercise. Participants most frequently identified segments of IH 35 as priorities for investment. Other responses were similar to those received during earlier outreach efforts (e.g., funding of multimodal projects).

CAMPO held a second round of public meetings to make the *Draft 2040 Plan* available for public review and comment. CAMPO held 12 meetings throughout the region, two in each county, and promoted each meeting through a variety of methods. The meetings were conducted in an open house format. Participants had the opportunity to review the *Draft 2040 Plan*, as well as county-specific maps of planned projects, and provide feedback via comment cards and/or an online survey.

Survey #2: CAMPO conducted a second online survey in June and July 2014 to identify regional project priorities for consideration in development of the *2040 Plan*. The survey was similar to the budget exercise conducted at the public meetings, although streamlined for ease of

Table 6: Priority Projects Identified By Respondents to Survey #2

County	Project Priorities
Bastrop	1. FM 969 from the Travis County Line to SH 71 2. SH 71 West of Colorado River to East of Loop 150 East 3. SH 21 from SH 71 to Caldwell County Line
Burnet	1. SH 71 - 2.914 MI East of CR 401 to Blanco County Line 2. SH 71 - 0.284 MI East of CR 401 to 2.914 M East of CR 501 3. US 281 - North of Marble Falls to South of Marble Falls US 281 - Left turn lane from RM 2147E to SH 71 SH 71 - 0.201 MI W of CR 401 to 0.201 MI E of CR 401
Caldwell	1. SH 21 - East of SH 130 to Bastrop County Line 2. SH 21 - Hays County Line west of Mustang Ridge to existing 4-lane section 3. SH 21 - FM 2001 to Caldwell - Hays County Line
Hays	1. Interstate 35 - Hays County - SH 45 SE to Centerpoint Rd 2. SH 45 - FM 1626 to IH 35 3. NF 2 (Dripping Springs) - US 290 W to US 290 E (North US 290 bypass)
Travis	1. RM 620 - Anderson Mill Rd. to SH 71 W 2. Interstate 35 - Travis County - SH 45 North to SH 45 SE 3. SH 45 - US 183 W to RM 2222 - Extend SH 45
Williamson	1. RM 620 - US 183 to Anderson Mill Road 2. Interstate 35 - Williamson County - SH 45 N to SH 195 N 3. Anderson Mill Rd - Parmer Ln to Loop 1

use. CAMPO received approximately 1,400 responses; for 68 percent of respondents, it was their first time to be involved with CAMPO.

The results of this survey were similar to the public meetings: respondents frequently identified IH 35 projects as priorities for improvement.

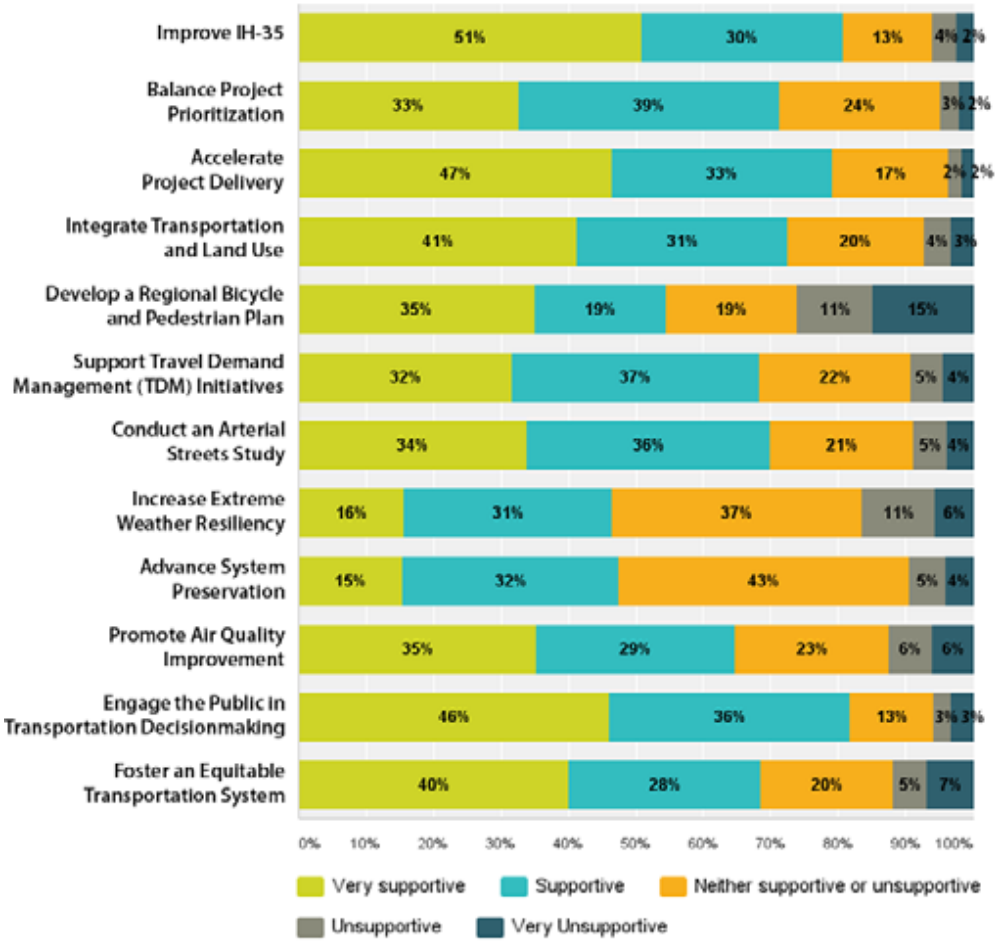
Survey #3: CAMPO conducted a final online survey in March 2015. It coincided with the public comment period on the *Draft 2040 Plan* and the second round of Mobile Meetings and public meetings. CAMPO received approximately 1,500 responses, including some from Spanish-speaking stakeholders. The bi-lingual survey gathered input on *Draft 2040 Plan* elements including:

- Travel Demand Management;
- Transportation System Management;
- Road projects;
- Transit projects;
- Bicycle projects;
- Corridor studies; and,
- Proposed action items.

Approximately 1,500 people responded to the survey, the results of which are shown in Figure 8.

Details of the survey and results of all public outreach for the development of the *2040 Plan* are available in a separate Public Involvement Report.

Figure 8: Survey #3 - Public Support for *2040 Plan* Action Items



2040 PLAN
GET INVOLVED – GET MOVING

Chapter 2
Mobility Needs

2040 PLAN
GET INVOLVED – GET MOVING

The CAMPO 2040 Plan calls for an investment of $4.25 billion in improvements to Interstate 35 over the next 25 years.

Chapter 2
Our Regional Mobility Needs

Planning the future regional surface transportation system entails an evaluation of the region's transportation supply and demand. Transportation infrastructure (roads, rail, pedestrian and bicycle facilities) represents the supply, while travel within and through the region represents the demand. The effectiveness of our future transportation network depends on how well we balance supply and demand.

The CAMPO region is experiencing rapid growth, leading to high demand on the transportation system. Forecasts indicate that by 2040, most of the anticipated growth will be from people moving to the region. This creates a high percentage of additional drivers who will need to use the transportation system immediately.

Funding constraints, at the local, state, and federal levels, limit our region's ability to provide supply adequate to meet anticipated demand. Given limited resources, and the high cost of adding capacity to the transportation system (e.g., building new lanes or buying new buses), plans for adding capacity must focus first on the most critical needs. The region must also ensure funds are available to maintain the system and to make improvements throughout the life of the plan.

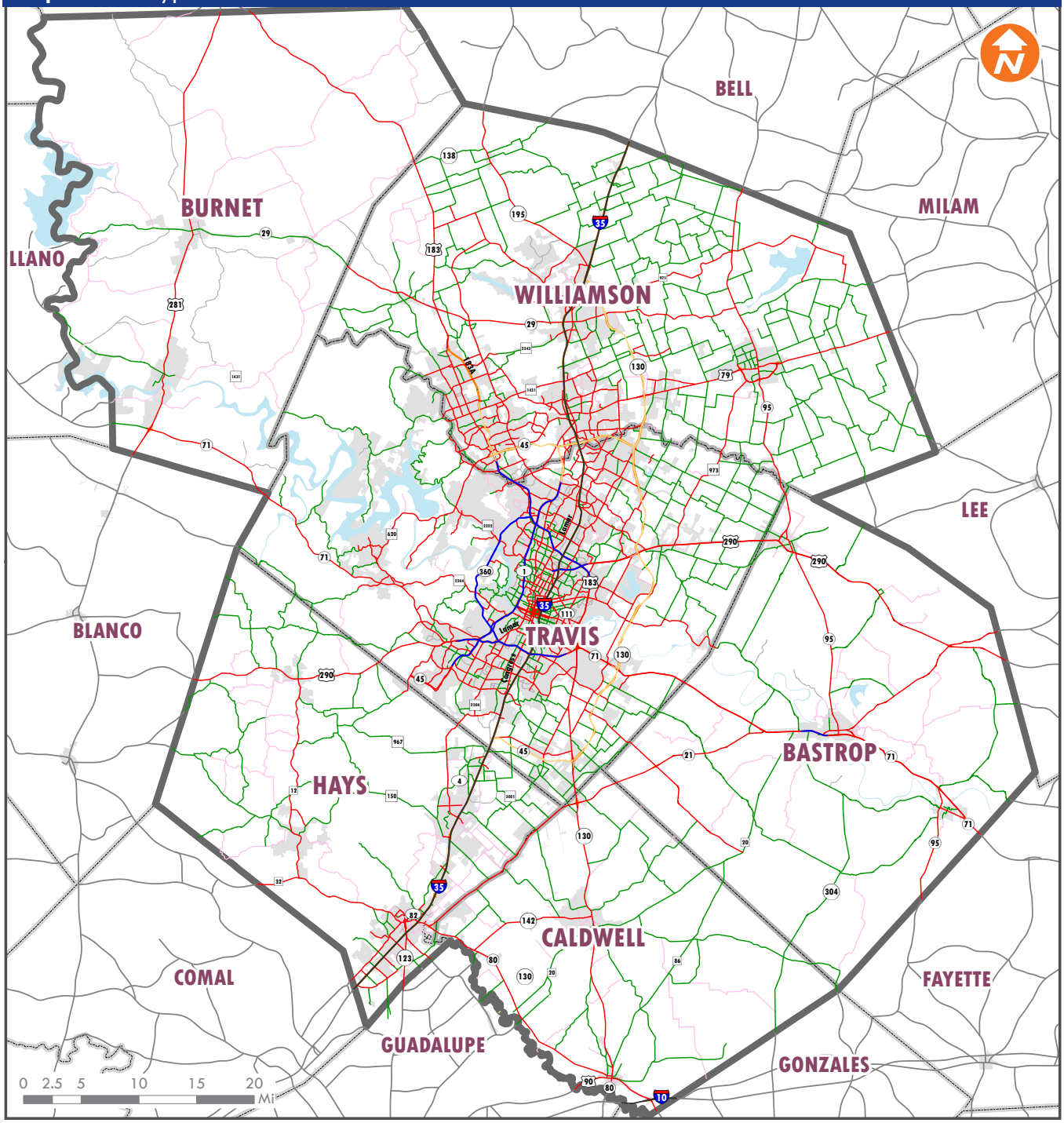
This chapter is an overview of our existing regional transportation network and shows the need for investment across different modes of travel. It describes the process CAMPO used to forecast future demands on the system and recommends an approach for investing limited resources to the greatest effect.

The Existing Transportation Network

Roads

Roads are essential to the region's transportation system, providing for the movement of people and freight within and through the region. Different types of roads function differently. The primary function of highways and other limited access roads is mobility; these roads provide for the movement of people and freight for longer distances, while providing limited local access. The primary focus of

Map 5: Road Types 2010



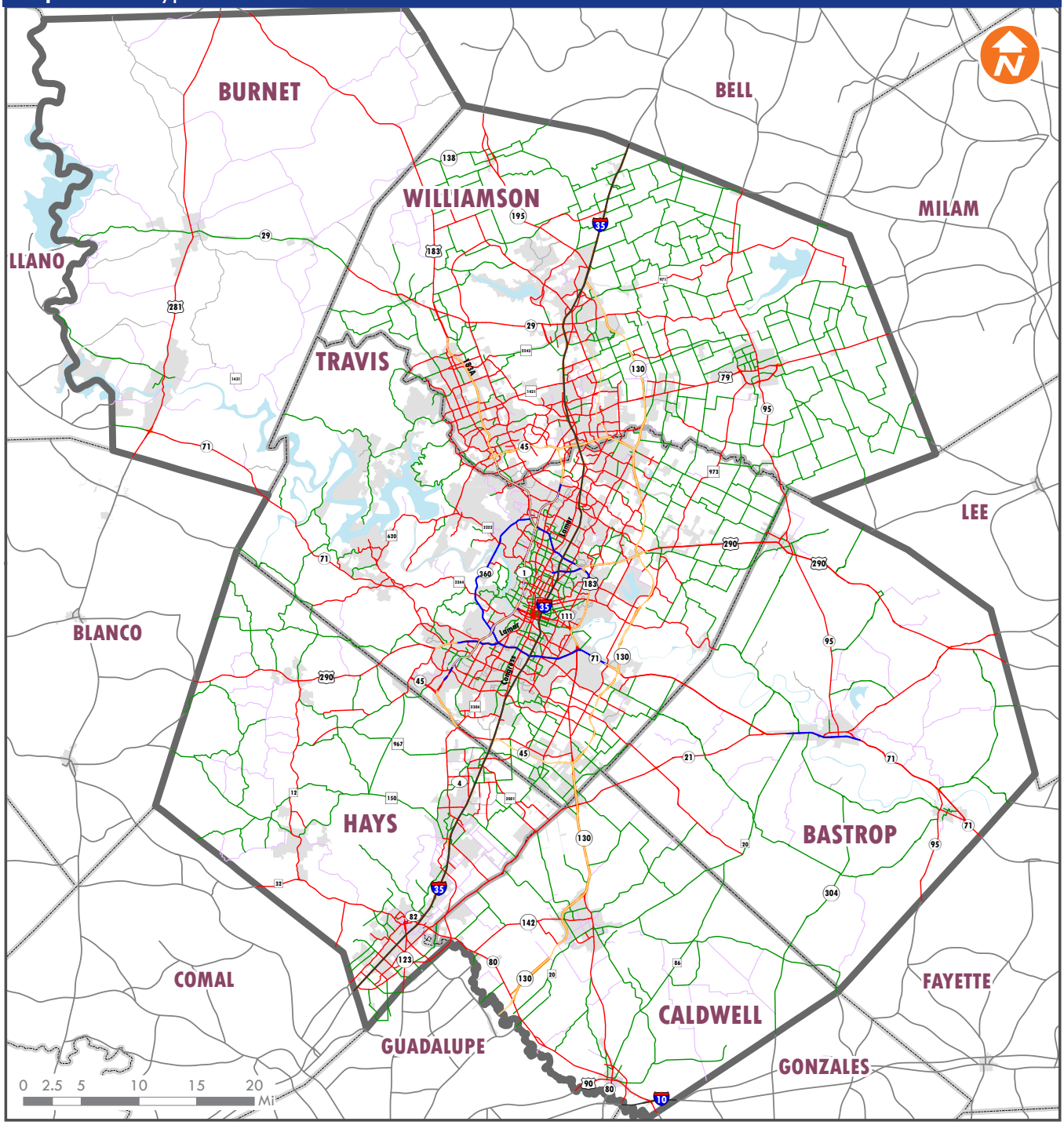
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Road Types 2010 2040.mxd

Road Type

- Interstate
- Freeway/Expressway
- Tolled
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Ramp/Frontage/Direct Connector
- City Limits

Map 6: Road Types 2040



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Road Types 2010 2040.mxd

Road Type

- Interstate
- Freeway/Expressway
- Tolled
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Ramp/Frontage/Direct Connector
- City Limits

arterials and other non-limited access roads is local accessibility. It is more difficult to move efficiently across the region on the non-limited access roads; it is more difficult to access local destinations on the limited access roads. An effective transportation system will have sufficient supply of all road types so that the system provides efficient mobility and accessibility. Table 7 compares the 2010 road network to the proposed 2040 road network by road type, and details the lane-miles and daily vehicle miles traveled (VMT) for each road type. Maps 5 and 6 illustrate the 2010 and proposed 2040 network by road type.

CAMPO predicts vehicle travel in the region could double by 2040, while road capacity will only increase by an estimated 15 percent.

Congestion Characteristics

Road congestion results when supply is not sufficient to meet travel demand. Congestion typically occurs on weekdays during the morning and evening peak periods when most people are going to work and returning home. CAMPO monitors congestion during the morning and evening peak periods through the congestion management process (CMP). In 2012, CAMPO collected and analyzed cell-phone and global positioning system (GPS) data on 2,400 centerline miles of roads in the region to evaluate the region's peak-period congestion levels. Map 7 shows the roads CAMPO monitored in 2012.

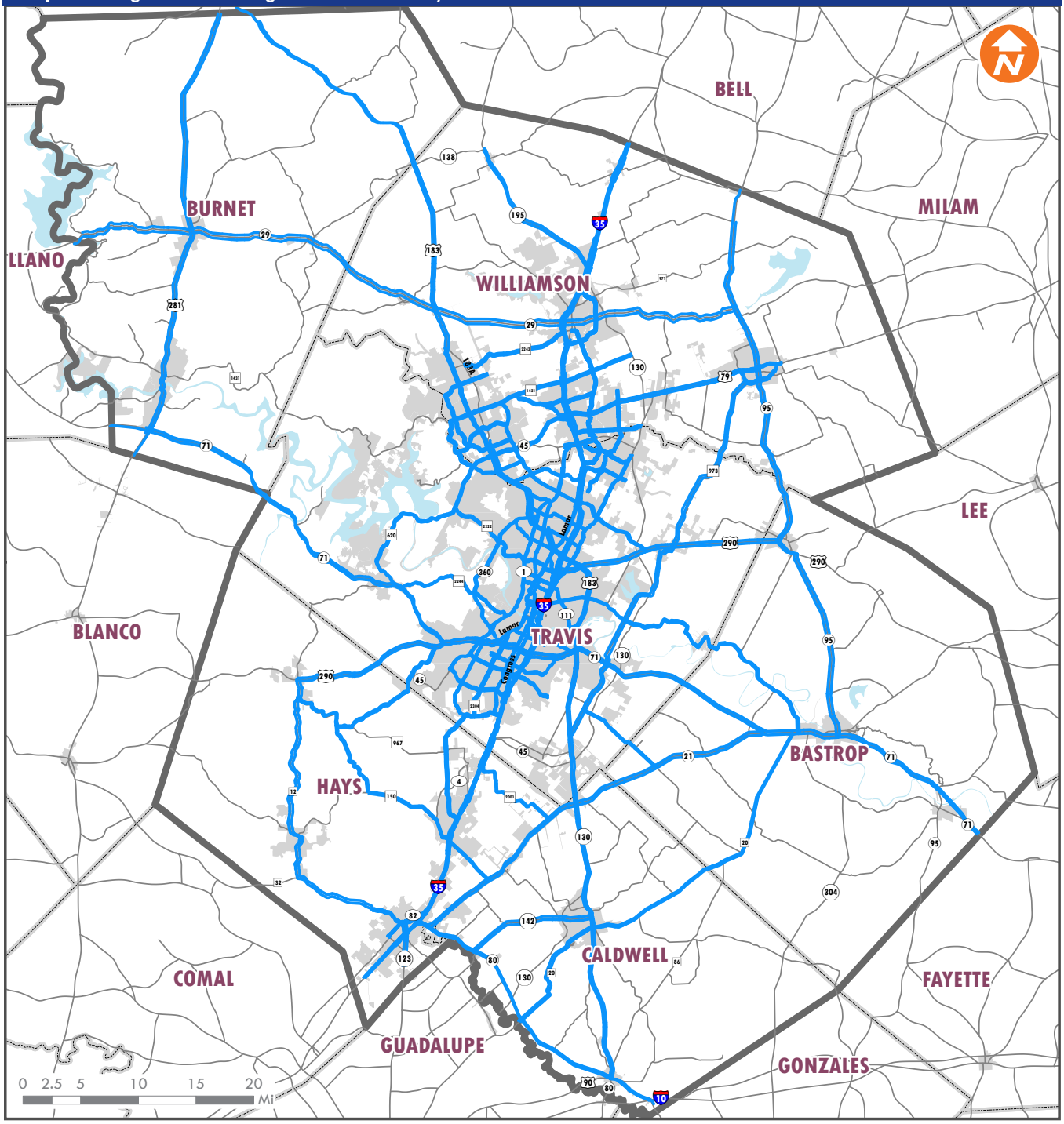
The CMP data showed that, region-wide, 21 percent of the roads monitored are moderately to severely congested in the morning peak and 26 percent of the roads monitored are moderately to severely congested in the evening peak. Roads in the more urbanized counties are more congested; in Hays, Travis and Williamson counties combined, 26 percent of the roads monitored are moderately to severely congested in the morning peak and 33 percent are moderately to severely congested in the evening peak. In Travis County, 37 percent of the roads monitored are congested in the morning peak and 44 percent are moderately to severely congested in the evening peak. An analysis of Travis County freeways indicates that 44.2 percent of the freeways monitored are moderately to severely congested in the morning peak and 61.3 percent are moderately to severely congested in the evening peak. Maps 8 and 9 show the total delay in the morning and evening peak periods. Appendices D and E identify the 50 most congested road segments for both the morning and evening peaks. More information on the CAMPO CMP and data analysis is found

Table 7: Supply and Demand on Regional Roadways

Road Type	2010 Lane Miles	2010 VMT*	2040 Lane Miles	2040 VMT*
Non-toll highways	854	14,005,833	1,059	21,787,361
Principal Arterials	4,552	17,744,376	6,450	38,706,838
Minor Arterials	3,841	4,693,411	3,595	10,434,793
Collectors	1,252	831,620	1,229	2,241,768
Locals	512	541,545	517	925,894
Non-toll: Frontage Roads, Ramps and Direct Connectors	993	4,058,162	1,279	8,614,132
Toll Express Lanes	0	0	220	2,735,551
Toll: Roads, Ramps and Direct Connectors	417	1,293,726	731	8,847,046
Total	12,421	43,168,673	15,079	94,293,382

**Vehicle miles traveled (VMT)*

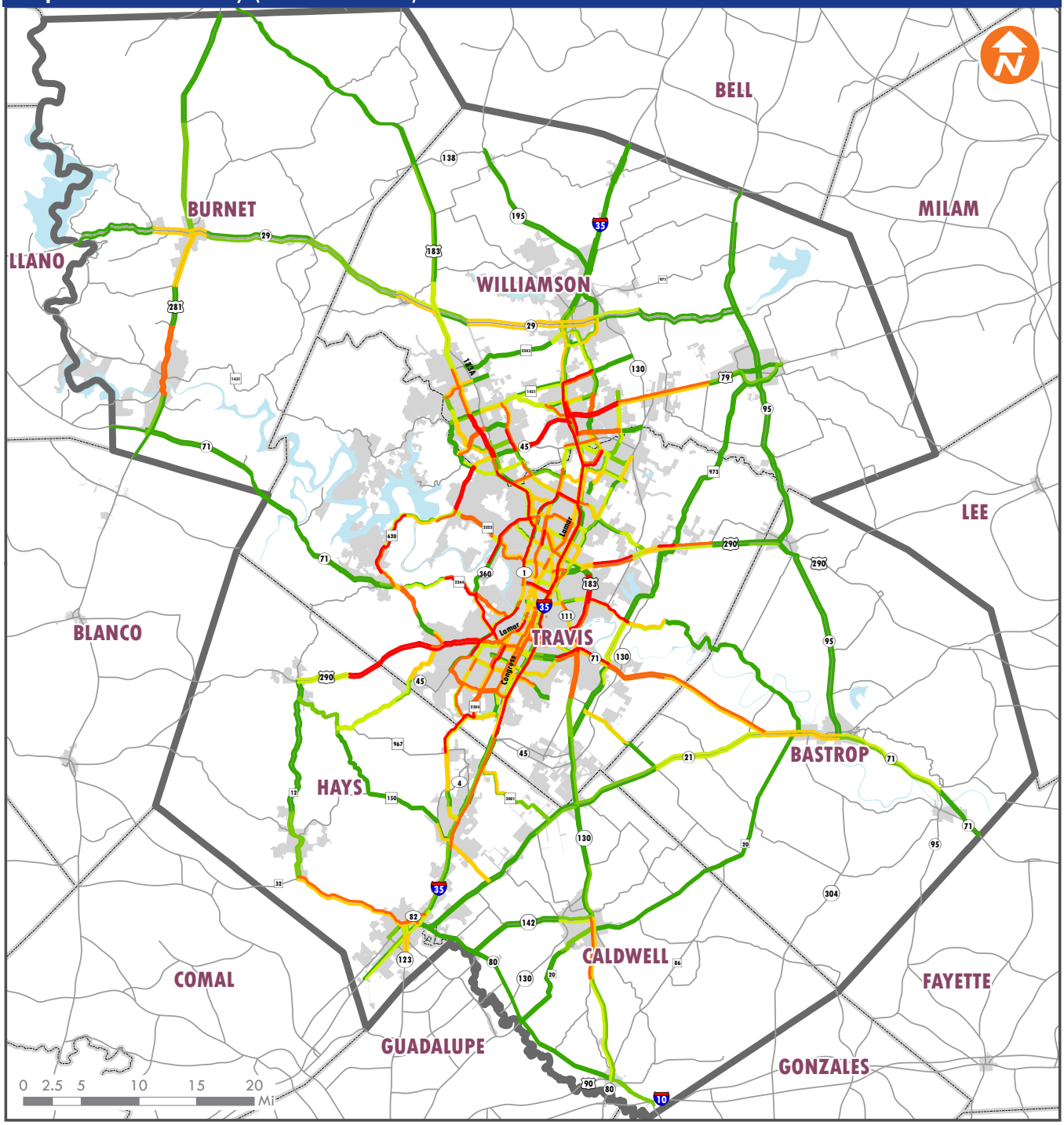
Map 7: Congestion Management Process System



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TTI
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Congestion Management Process System.mxd

CMP (Congestion Management Process) Roads
City Limits

Map 8: AM Total Delay (in vehicle-hours)



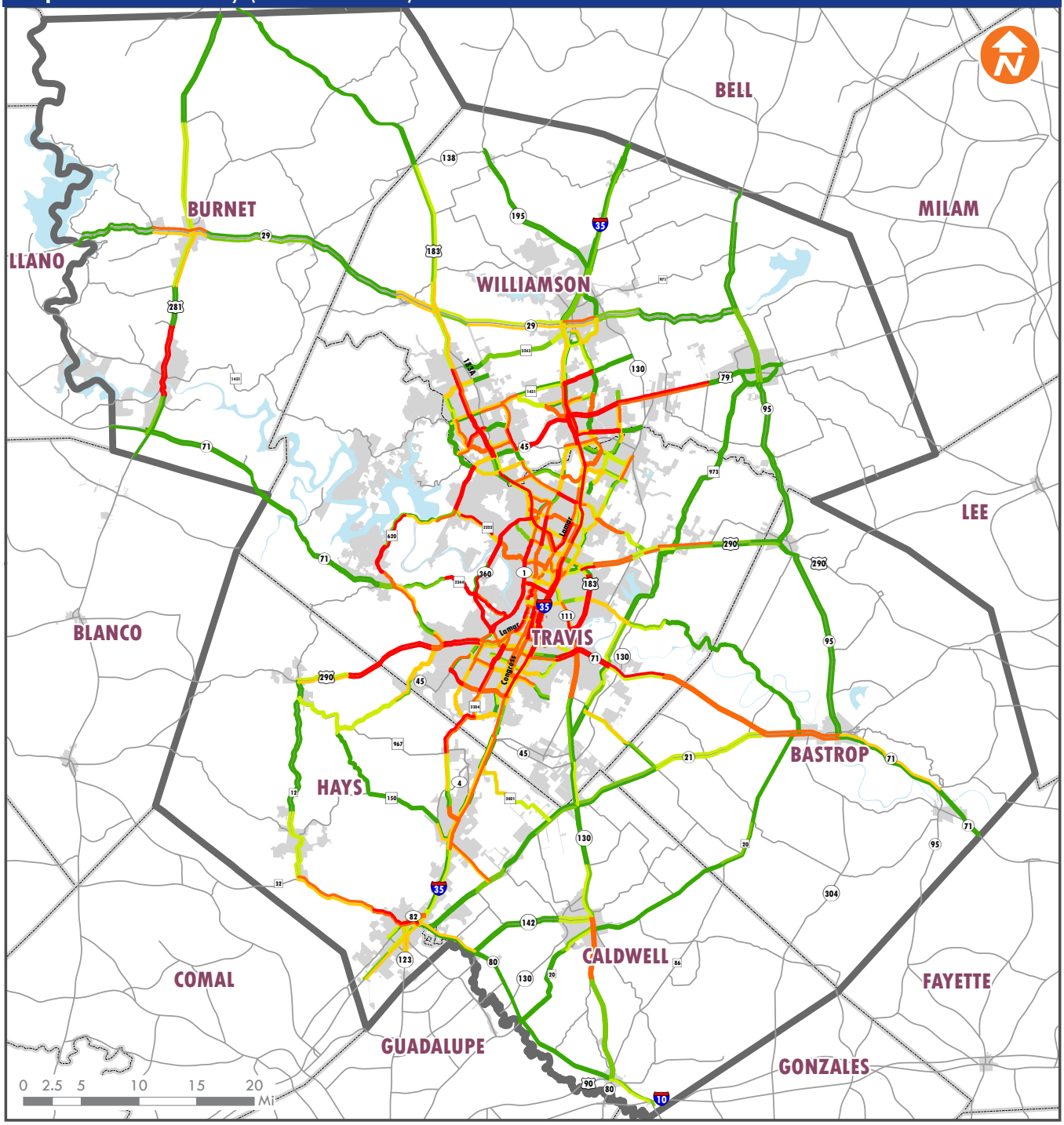
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TTI

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\AM PM Total Delay Per Mile.mxd

Vehicle-Hours

- < 5
- => 5 and < 10
- => 10 and < 20
- => 20 and < 40
- => 40 and < 80
- => 80
- City Limits

Map 9: PM Total Delay (in vehicle-hours)



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TTI

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\AM PM Total Delay Per Mile.mxd

Vehicle-Hours

- < 5
- => 5 and < 10
- => 10 and < 20
- => 20 and < 40
- => 40 and < 80
- => 80
- City Limits

in CAMPO's *2012 Roadway Congestion Analysis: Performance Report and Information System.*

IH 35—One of the Most Congested Roads in Texas

Interstate Highway (IH) 35 bisects the CAMPO region, passing through Williamson, Travis, and Hays counties and connecting several municipalities. More than 200,000 vehicles travel on segments of IH 35 in Travis County every day. IH 35 in Travis County consistently ranks near the top of the Texas Department of Transportation's (TxDOT) list of the 100 most congested road segments in the state. Segments of IH 35 in Williamson County also rank in the top 100 most congested segments.

In 2013, IH 35 from US 183 to SH 71/US 290W was the most congested road segment in Texas. In 2014, the same segment was the second most congested road segment overall and the most congested road segment for freight.

State and local officials, the business community, and the general public all identify IH 35 as the region's biggest transportation problem and agree that it must be improved now.

Congestion is not the only concern, the accident rate on IH 35 in the CAMPO region is higher than the state average.

State and local officials, the business community, and the general public all identify IH 35 as the region's biggest transportation problem and agree that it must be improved now.

Other highly congested roads in the capital area include US 183, MoPac (Loop 1), US 290E, and Loop 360.

Traffic on the IH 35 frontage road at MLK Jr. Blvd. in Austin.

Public Transportation

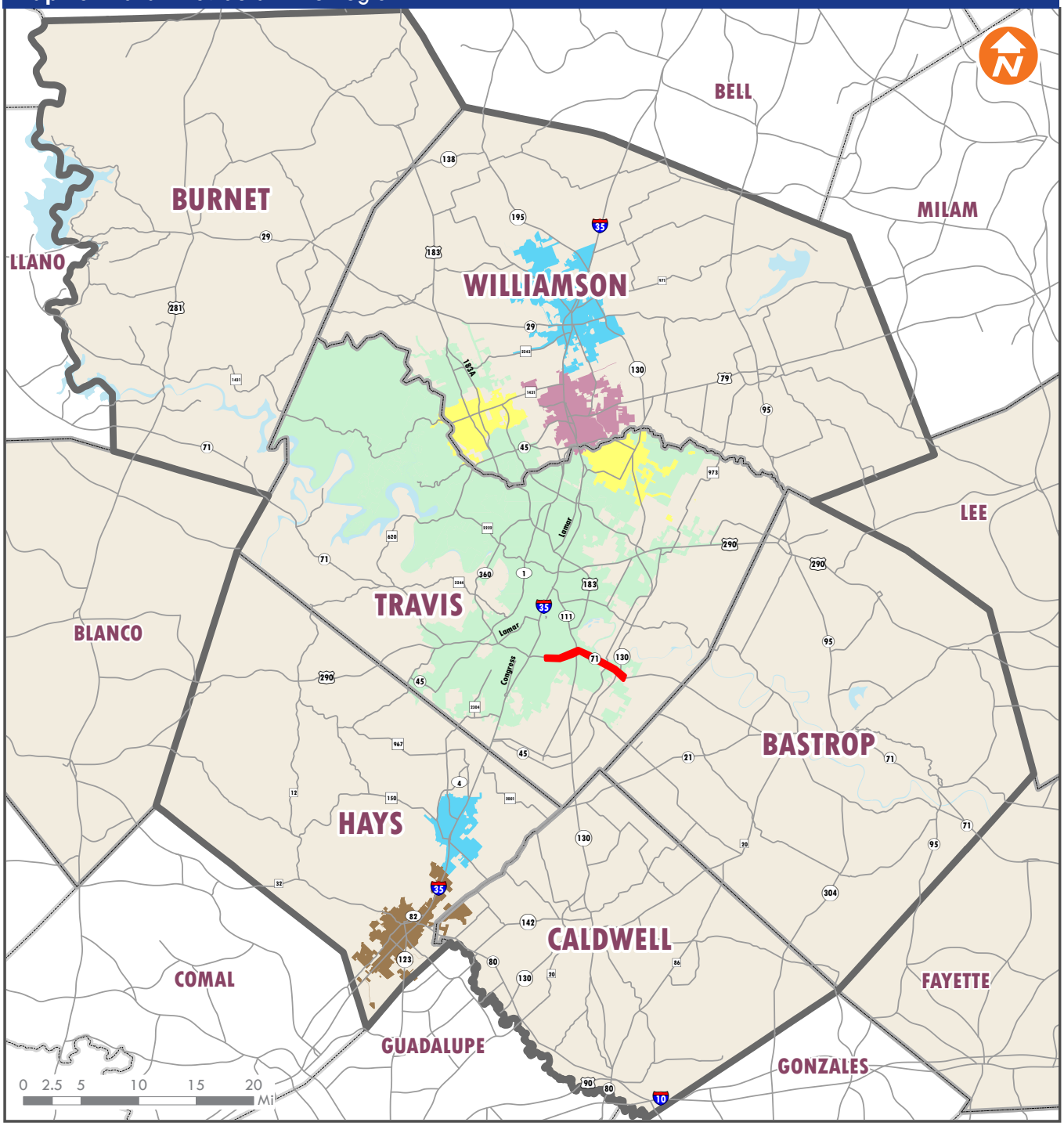
Public transportation includes all shared passenger services available to the public. It may be fixed-route via bus or train or demand response, which provides service via vans. Public transportation is funded through a variety of sources, including federal funds dedicated to urban and rural areas, and to types of riders, such as the elderly or people with disabilities. Additionally, state and local funds contribute to the public transportation system. In the CAMPO area, municipalities, counties, and portions of counties can dedicate a one-percent sales tax to Capital Metro for public transportation services.

Public transportation is also funded by fares. Service providers charge fares based on the type of service provided. For example, express bus service, which tends to cover longer distances with fewer stops, typically has a higher fare than local bus service.

Transit Providers in the Region

Public agencies, universities, and non-profit organizations provide public transportation in the capital area. Map 10 shows the service areas of various public transportation providers.

Map 10: Transit Providers in the Region



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: Captial Metro, TTI
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Public Transportation Providers.mxd

Urban Transit

The Capital Metropolitan Transportation Authority (Capital Metro) provides urban public transportation services and complementary paratransit services within its service area. The Capital Metro service area comprises the following jurisdictions: Austin, Jonestown, Lago Vista, Leander, Manor, Point Venture, San Leanna, Volente, and portions of Travis and Williamson counties. These member jurisdictions voted to join Capital Metro, which operates the MetroBus, MetroExpress, MetroRapid, MetroRail, Night Owls, E-Bus, University of Texas Shuttles (for more information, see University Transit section), MetroAccess, MetroRideshare, and freight rail services.

The City of Round Rock Demand Response Bus Service provides reservation-based services within the city limits and the extraterritorial jurisdiction of Round Rock.

Rural Transit

The Capital Area Rural Transportation System (CARTS) provides fixed-route transit service to Bastrop and San Marcos on a contract basis. San Marcos Transit serves San Marcos and Martindale

Capital Metro Bus

via twelve routes that operate from the central hub of San Marcos Station.

CARTS also provides rural transit and paratransit services to rural areas within the CAMPO region. This rural/urban transit district operates the Interurban Coach, Country Bus, Metro Connector, Municipal Bus (Bastrop and San Marcos), Medical Transportation, and Commuter Route services. It provides additional connections to Blanco, Fayette, and Lee counties, as well as intercity services.

CARTS provides transit service to rural areas in the CAMPO region.

Pedi-cabs are popular in downtown Austin.

University of Texas Shuttle

University Transit

The University of Texas (UT) at Austin Shuttle System includes 10 routes providing circulator services around the central campus and express services to UT students, faculty, and staff from multiple locations in the city of Austin. The UT Shuttle System is jointly funded through a partnership between Capital Metro and the University of Texas.

The Bobcat Shuttle System at Texas State University includes ten circulator routes from off-campus housing and remote parking locations in the City of San Marcos.

Client-Based Transportation Providers

The region has 38 client-focused transportation providers. These organizations provide transportation services to various specific populations, such as clients of human service organizations, residents of particular communities, or specific demographic groups (such as the elderly or people with disabilities).

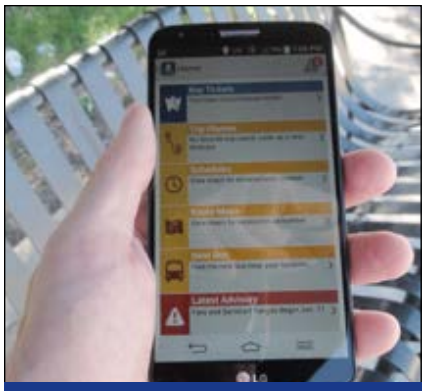
Regional Transit Coordination Committee

The CAMPO region is served by multiple public transportation agencies and service providers. The Regional Transit Coordination Committee (RTCC) helps integrate these different services to create a more seamless travel experience for the transit rider. The RTCC represents more than 25 organizations in the 10-county region which includes Llano, Burnet, Blanco, Williamson, Travis, Hays, Bastrop, Caldwell, Fayette, and Lee counties. These organizations are responsible for providing transportation services for health and human services, public transit, and client transportation. CAMPO serves as the administrative lead agency for this effort.

The RTCC approved the Capital Area Coordinated Plan for Public Transit and Health and Human Services Transportation in February 2012. The updated plan:

- Identifies ways that the region's existing family of public transportation services (ranging from transit buses to agency vans to volunteer drivers) can be better coordinated to meet more needs;

Ridership information at Capital Metro bus stops is integrated with the CapMetro mobile app.



Capital Metro has developed a smart phone app to better serve riders.

- Identifies cost-effective strategies for addressing unmet needs in the region; and,
- Guides the prioritization of capital and operations funding through the Federal Transit Administration (FTA).

Transit-Related Apps

Apps on handheld devices can facilitate transit use. Capital Metro has developed the free CapMetro App. It allows the user to buy passes, plan trips, get real-time arrival information (within 90 seconds), and other information. In addition, Capital Metro provides links to a variety of apps that use its data to provide schedule information for bus and rail routes. Once at the stop, it is possible to find out when the next several buses are scheduled to arrive. Each stop has a unique identification number. By calling the number provided and entering the stop ID number, travelers can receive information regarding buses for that stop.

Active Transportation: Bicycle and Pedestrian Network

Bicycling and walking are vital elements of a well-balanced transportation system. Non-motorized transportation modes can enrich the livability of a community, reduce congestion, improve mobility, improve physical health, and enhance the overall quality of life for residents.

Whether for an entire trip, or just a segment of it, "human-powered" modes are essential transportation, particularly for non-drivers. The 2009 National Household Travel Survey indicates nearly one in 20 households in the CAMPO region does not have a vehicle. The U.S. Census shows that the six-county CAMPO region had an increase of approximately 3,500 work trips by bicycle and 2,500 pedestrian work trips between 2000 and 2013.

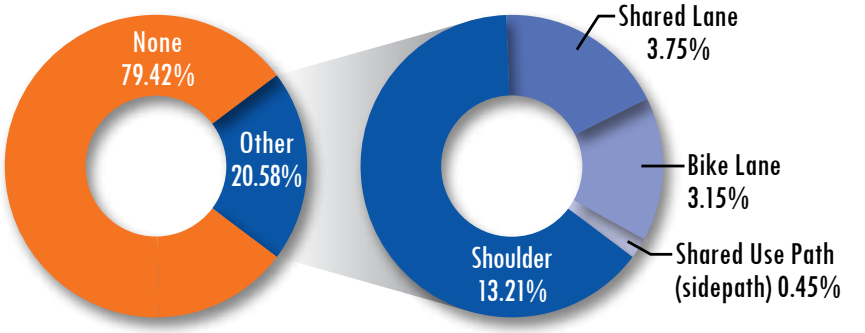
The active transportation system is made up of many elements provided by a variety of sources. City regulations may require developers to construct sidewalks. Bicycle infrastructure in the road right-of-way is provided by cities, counties, or the state. Off-road paths may be provided by cities, counties, or the state, and sometimes these paths are built by the developer of a large tract of land.

In 2012, CAMPO staff inventoried bicycle and pedestrian transportation network facilities on the CAMPO modeled road network. This inventory, along with Census data and the American Community Survey, provides data regarding the CAMPO region's use of its bicycle and pedestrian infrastructure.

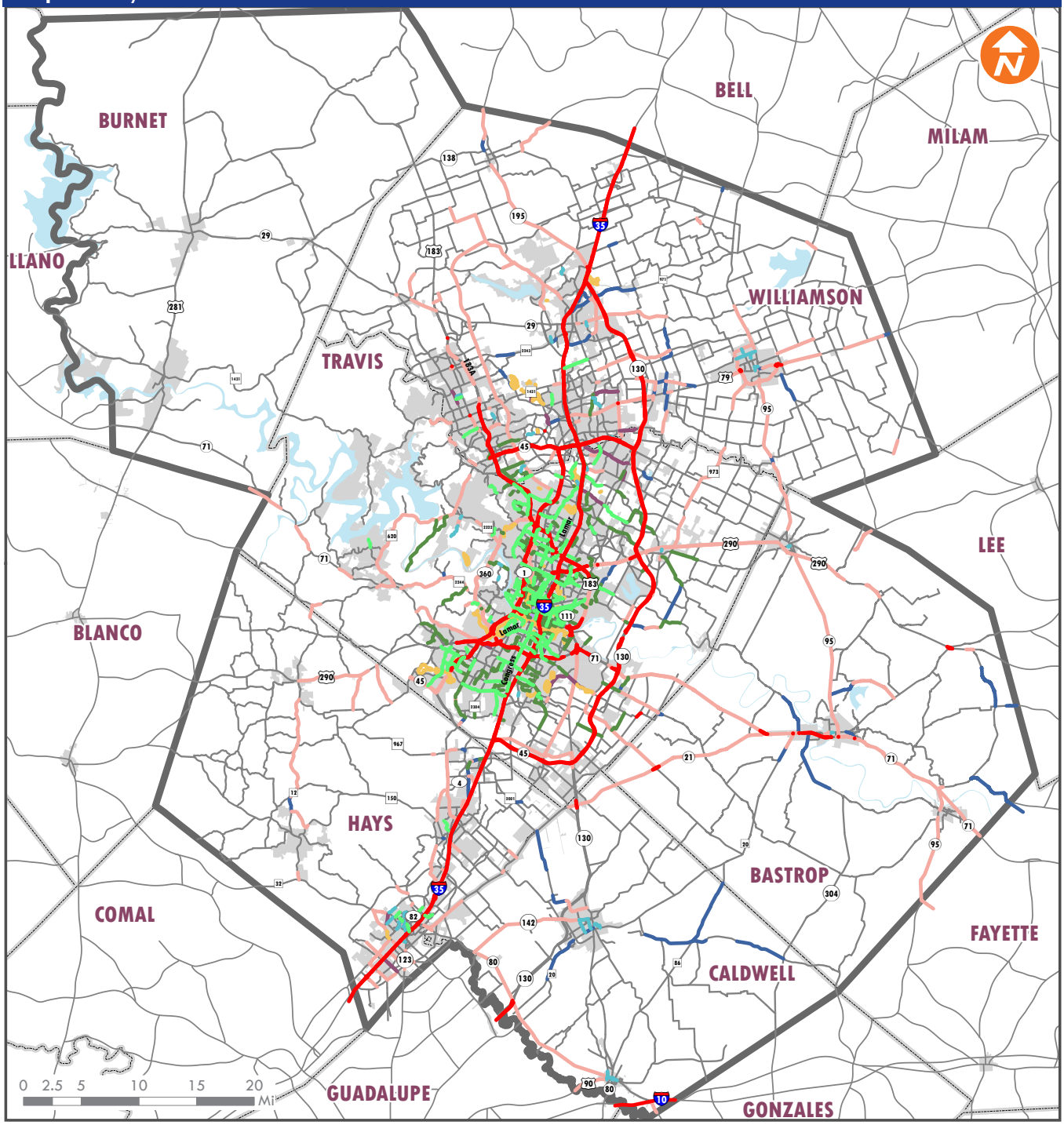
Existing Bicycle System

Bicycle infrastructure typically includes striped bicycle lanes, shoulders, shared-use paths, shared (wide outer) lanes, and trails. The CAMPO inventory

Figure 9: CAMPO Bicycle Facilities Coverage, 2012



Map 11: Bicycle Facilities - 2012



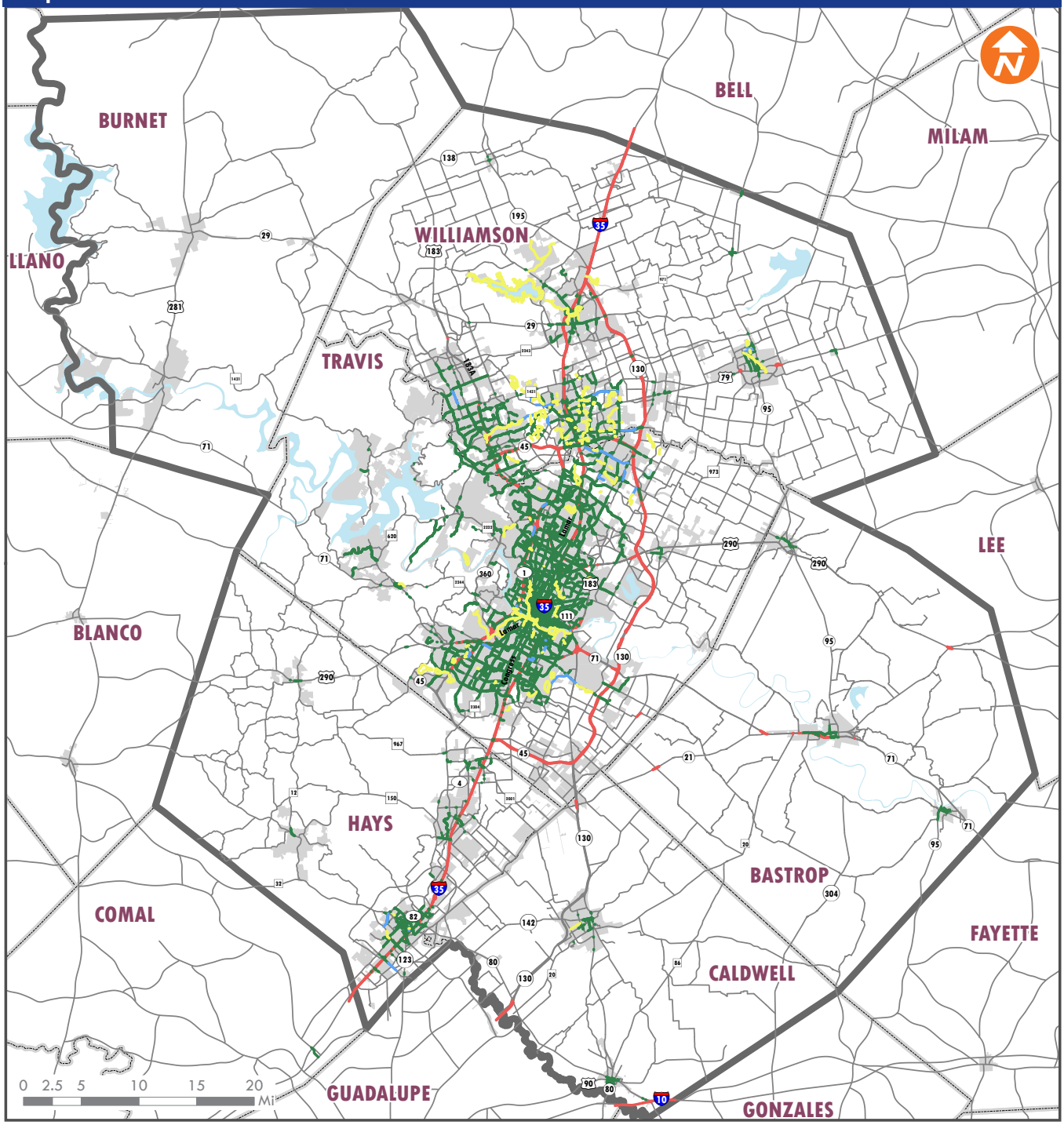
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Bicycle Facilities.mxd

Bicycle Facility

- Bike Lane
- Bike/Ped Prohibited
- Shared Lane (No Provisions)
- Shared Lane (Wide Outer Lane)
- Shared Lane (With Provisions)
- Shared Use Path (Independent ROW)
- Shared Use Path (Sidepath)
- Shoulder
- Shoulder (Non-Compliant)
- City Limits

Map 12: Pedestrian Facilities - 2012



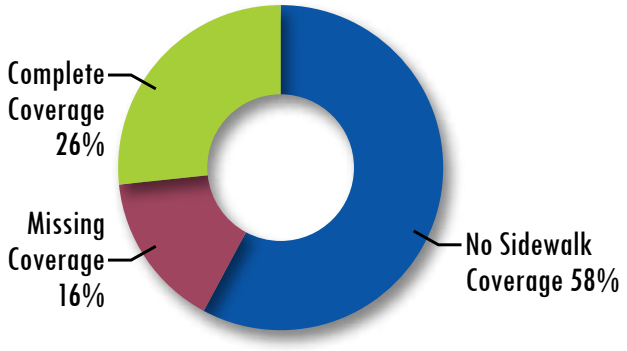
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Pedestrian Facilities.mxd

Pedestrian Facility

- Bike/Ped Prohibited
- Shared Use Path (Independent ROW)
- Shared Use Path (Sidepath)
- Sidewalk
- City Limits

Figure 10: CAMPO Sidewalk Coverage, 2012 (within the 2010 Census Urbanized Areas)



found that 79 percent of its modeled road network lacked bicycle facilities (see Figure 9). This includes limited-access roads (such as IH 35 and MoPac) that prohibit bicycles. Results of the inventory can be found on Map 11.

In 2013, *Bicycling Magazine* named Austin one of the country's Top 50 Bicycle-Friendly Cities. The number of bicycling commuters has increased in Bastrop, Hays, Travis, and Williamson Counties.

Existing Pedestrian System

In CAMPO's 2012 inventory of pedestrian infrastructure, 58 percent of the regional network roads in the 2010 Census urbanized areas have no sidewalks, 26 percent have complete sidewalks (sidewalks on both sides of the street or limited gaps), and 15 percent have incomplete sidewalks, such as sidewalks on one side of the street or significant gaps (see Figure 10). The results of this inventory can be found on Map 12.

Sidewalks are the predominant pedestrian facility in the CAMPO region, with 97 percent located in 2010 Census urbanized areas. Sidewalks in rural areas are typically located where a regional road runs through the center of a small town.

Rail

The capital area is served by one Class I railroad, Union Pacific Railroad (UPRR), and two short line railroads: Capital Metro and Georgetown Railroad. UPRR operates from San Antonio through San Marcos, Austin, and continuing north. It also operates a line from San Marcos to Lockhart and into Bastrop County. A third line comes from La Grange through Bastrop and continues through Williamson County.

UPRR runs freight traffic on all their lines. Amtrak's Texas Eagle operates daily on its north-south route running from San Antonio to Chicago. Lone Star Rail District is conducting environmental studies on a proposed freight bypass that would move UPRR's through-freight operations to a new line east of Austin in order to offer regular passenger service between San Antonio and Austin, continuing to Georgetown.

Capital Metro's commuter rail line runs from Llano through Burnet, Austin, and Elgin before terminating in Giddings. Capital Metro offers service from Leander to downtown Austin. Austin Steam Train

UPRR operates from San Antonio through San Marcos, Austin, and continuing north.

operates several trips on the portion between Austin and Burnet. Freight operations also run on this line.

Georgetown Railroad operates from Austin to Georgetown and continues north to the UPRR line. It primarily serves a large quarry outside Georgetown.

Aviation

Airports in the CAMPO Region

The CAMPO region has ten airports included in the TxDOT Texas Airport System Plan (TASP) as illustrated in Table 8. The TASP identifies the Texas airports and helipads that are vital to the state's economic and social wellbeing. Of more than 1,600 air travel facilities in Texas, only 292 airports and two heliports meet the TASP requirements.

The TASP organizes listed airports by type. The types of airports included in the TASP are commercial service, reliever, business/corporate, community service, and basic service. Some TASP airports are eligible to receive federal funding. In order to receive federal funding, TASP airports must also be included in the National Plan of Integrated Airport Systems (NPIAS). Of the CAMPO region's ten TASP airports, eight are included in the NPIAS. Map 13 shows the locations of the CAMPO region's TASP airports, all 10 of which are described below.

Map 13: Airports in region, by type and National Plan of Integrated Airport Systems

Table 8: Airports in the CAMPO Region

Airport	Classification
Austin-Bergstrom International Airport - Austin, TX	Primary Commercial Service Airport
Georgetown Municipal Airport - Georgetown, TX	Reliever Airport
San Marcos Municipal Airport - San Marcos, TX	Reliever Airport
Austin Executive Airport - Austin, TX	Business/Corporate Airport
Kate Craddock Field - Burnet, TX	Business/Corporate Airport
Crawford Municipal Airport - Smithville, TX	Community Service Airport
Lockhart Municipal Airport - Lockhart, TX	Community Service Airport
Rusty Allen Airport - Lago Vista, TX	Community Service Airport
Taylor Municipal Airport - Taylor, TX	Community Service Airport
Carter Memorial Airport - Luling, TX	Basic Service Airport

Primary Commercial Service Airports

Austin-Bergstrom International Airport

Austin-Bergstrom International Airport (ABIA), located off SH 71 in Austin, is the CAMPO region's main airport. Over 10 million passengers (a 6.23 percent increase in passengers since 2012) and 79,000 tons of cargo enplaned and deplaned at ABIA in 2013 (see Table 9). There are 16 commercial airlines at ABIA, with service to 44 domestic and foreign destinations. ABIA also serves two air

Table 9: ABIA Activity (Passenger and Cargo)

Activity	2011	2012	2013	2014
Total passenger activity	9,080,875	9,430,314	10,017,958	10,718,854
Total cargo activity (in tons)	76,685	77,810	79,276	77,720

freight providers: FedEx and UPS. ABIA is listed in the NPIAS.

Terminals

ABIA has one terminal, the Barbara Jordan Terminal, which houses 25 gates. The terminal is currently undergoing expansion.

Runways

ABIA has two runways: 17R/35L and 17L/35R. Runway 17R/35L (dedicated to President Lyndon Baines Johnson) is 12,248 feet long by 150 feet wide. Runway 17L/35R (dedicated to Congressman J.J. Pickle) is 9,000 feet long by 150 feet wide.

Helipads

ABIA has three helipads. Helipads H1 and H2 are for general helicopter use. Helipad H3 is the Cardwell Army Helipad and is restricted to military helicopter use only.

ABIA is now the 36th busiest airport in the nation.

Georgetown Municipal Airport

Reliever Airports

The CAMPO region has two airports classified as reliever airports: Georgetown Municipal Airport and San Marcos Municipal Airport. Reliever airports are airports that provide alternative general aviation facilities to relieve congestion at commercial service airports. Georgetown Municipal has two runways; San Marcos Municipal has three. Both of the reliever airports in the region are included in the NPIAS.

Business/Corporate Airports

The CAMPO region has two airports classified as business/corporate airports: the Austin Executive Airport and Burnet Municipal Kate Craddock Field. These airports provide access to business jets. Austin Executive Airport, previously known as Bird's Nest Airport, has two runways and is not listed in the NPIAS. Kate Craddock Field has one runway and is included in the NPIAS.

Community Service Airports

There are four airports in the CAMPO region listed as TASP community service airports: Lago Vista Rusty Allen Field, Lockhart Municipal Airport, Smithville Crawford Municipal Airport, and Taylor Municipal Airport. Community service airports provide access to single and light twin-engine aircraft and a limited number of business jets. All of the region's community service

Small aircraft typical at community service airports

airports have a single runway and are included in the NPIAS.

Basic Service Airports

There is a single basic service airport in the CAMPO region: Carter Memorial Airport in Luling. Basic service airports provide service to communities that are more than a 30-minute drive from all higher-level airports. They traditionally support essential, but low-traffic, activity. The Carter Memorial Airport has a single runway.

Forecasting Future Travel

The existing transportation system described previously is used to assess current traffic congestion. CAMPO then forecasts future travel demand. Travel demand is the result of thousands of individual travelers making decisions on when, where, and how to travel every day. These decisions place varying levels of demand on the transportation system.

Travel demand models use current and forecast socioeconomic data and information about the transportation system and land use. The term "model" refers to a series of mathematical equations used to represent these decisions. The demographic inputs, to the model are described in Chapter One.

The four-step travel demand model process is described in Figure 11. The model is calibrated to observed 2010 traffic counts. Once calibrated, the model is used to forecast future traffic conditions.

Evaluating Alternative Future Scenarios

What will traffic conditions in 2040 be like? How can we best use our limited resources to improve conditions? These questions can be answered, to the extent possible, by comparing different "what if" scenarios.

Scenario planning provides the opportunity to compare the outcomes and potential benefits

The *CAMPO 2040 Plan* includes critical investment on our local roads.

Figure 11: Four-Step Model

Forecasts indicate that due to rapid population growth and limited funding, traffic congestion will worsen by 2040.

of different investments in the future transportation system. CAMPO used its data-driven travel demand model to produce several potential scenarios for the *CAMPO 2040 Regional Transportation Plan*. We included demographic projections and a land-use pattern based on Centers, as described in Chapter One. We considered scenarios that included both road and public transportation projects, since some federal and state funds are allocated to specific transportation modes.

CAMPO solicited projects from local governments and agencies (or "sponsors") to develop several scenarios for the future transportation system. Sponsors provided project information such as description, limits, cost, expected funding source, and estimated funding and opening date.

Using this information, CAMPO staff and the CAMPO Technical Advisory Committee developed project lists for the scenarios. CAMPO assigned each project to at least one of the project lists. See Table 10 for a brief description of each list. The final column of the table indicates which projects were included in the preferred scenario.

Comparing Scenarios

CAMPO used the travel demand model to assess benchmark scenarios, alternative scenarios, and the preferred scenario. The alternative scenarios and the pre-

Table 10: *CAMPO 2040 Plan* Scenario Development

Project Lists	Description of Project Lists	Preferred Scenario
E+C (Existing + Committed)	Funding for projects expected to be built in the next five years has already been identified and it is very likely these projects will be built.	All E+C projects are included in the preferred scenario.
Grouped	Some types of projects do not need to be listed individually in the plan and these projects are funded from sources dedicated to these purposes. The different groupings are: safety, bridges, rehabilitation, and maintenance.	All Grouped projects are included in the preferred scenario.
Regional	These are road projects on limited-access highways (those without traffic signals) and other principal arterials.	Selected Regional projects are included in the preferred scenario – see text for description.
Sub-Regional	These are road projects on other regionally significant roads.	Selected Sub-Regional projects are included in the preferred scenario – see text for description.
Urban Transit	These are transit projects eligible for federal urban transit funding.	Some Urban Transit projects were included in the preferred scenario.
Rural Transit	These are transit projects eligible for federal rural transit funding.	All Rural Transit projects are included in the preferred scenario.
100 percent Locally Funded	These are projects that a sponsor plans on building solely with their local funds.	All 100 percent Locally Funded projects are included in the preferred scenario.
Illustrative	These are projects for which there is no funding and in some cases no sponsor. These projects have the potential to be amended into the fiscally constrained project list at a later date.	The Illustrative list is not included in the preferred scenario. Some Regional and Sub-Regional projects were moved to the Illustrative List after project selection for the preferred scenario.

Figure 12: *CAMPO 2040 Plan* Alternative Scenarios

Baseline Scenario	No-Build Scenario	Scenario 1 Regional	Scenario 2 Subregional	Scenario 3 Preferred Scenario
Assumes conditions as of 2010	Assumes 2040 demand with 2020 supply	Assumes investment in regional roads and transit (not fiscally constrained)	Assumes investment primarily in local roads and transit (not fiscally constrained)	Assumes investment in IH 35 and key roads and transit (fiscally constrained)

ferred scenario were compared to the benchmark scenarios to evaluate performance.

There are two benchmark scenarios consisting of the existing transportation network plus committed projects (projects with committed funding that will be implemented by 2020). These benchmarks were run with either 2020 demographics (existing plus committed scenario) or 2040 demographics (no-build scenario). The benchmark scenarios indicate transportation system performance in 2020 and 2040 if no additional investment is made in the transportation system.

CAMPO tested two alternative scenarios that were not fiscally constrained. The regional and sub-regional scenarios evaluate the effectiveness of different types of road and transit projects in addressing the region's overall mobility needs in 2040. Since these scenarios are not fiscally constrained, they are theoretical scenarios for evaluation purposes only (see Figure 12).

CAMPO included all of the submitted regional projects plus those transit projects that met the definition of regional projects, the committed projects, and 100 percent locally-funded projects in the regional scenario. All of the submitted sub-regional projects were included in the sub-regional scenario plus those transit projects that met the definition of sub-regional projects, the committed projects, and 100 percent locally-funded projects. Sponsors submitted more sub-regional projects than regional projects.

CAMPO ran both scenarios with 2040 demographics. Results indicate that both arterial street and highway improvements are needed, as well as regional and local transit service. Arterial street improvements may offer significant mobility improvement opportunities.

Performance Measures

CAMPO evaluates potential future transportation scenarios by measuring how they "perform" against current conditions and a no-build or "do nothing" scenario. Twenty-two performance measures assess how well a modeled network meets *CAMPO 2040 Plan* goals. Appendx G contains a matrix of performance measures and results for the 2010 baseline, no-build, and preferred scenarios.

Modeling Results

The results of all the modeling runs, or forecasts, indicate that traffic congestion will become an increasingly challenging issue by

Capital Metro Transit Center on North Lamar Boulevard in Austin

The preferred scenario invests $4.85 billion to improve IH 35 and supporting roads.

2040 due to rapid population growth and a reasonable assumption of limited funding for transportation improvements. The model is only capable of assessing the impact of projects that alter the capacity of the system. It cannot predict behavioral changes to travel patterns.

Regional mobility will be improved both by building or improving our transportation infrastructure and by reducing demand on the transportation system.

The Preferred Scenario

The *CAMPO 2040 Regional Transportation Plan* preferred scenario includes road and transit projects for which the region expects to receive funding between 2015 and 2040. The preferred scenario invests $4.85 billion in state and federal funds, including matching funds, to improve IH 35 and its supporting roads.

CAMPO developed the preferred scenario based on data gathering and analysis, as well as on input from residents, local government agencies, and policy makers. The *2040 Plan* represents the region's shared goal of producing the most effective transportation system possible.

Selection of road projects for state and federal funds followed an iterative process. First, the CAMPO Board selected IH 35 projects in Hays, Travis, and Williamson counties (at a cost of $4.25 billion). CAMPO then allocated the remaining $605 million of state and federal road funds based, in part, on a project's ability to relieve IH 35 traffic by improving other north-south routes and IH 35 connections, by improving safety or by relieving congestion on other roads. See Chapter Five for the complete list of road projects funded with state and federal dollars.

The preferred scenario includes projects from the following project lists (see Table 10):

- All Existing + Committed Projects;
- All Grouped Projects;
- All Rural Transit Projects; and,
- All 100 percent Locally Funded Projects.

Funding was not sufficient to include all the urban transit, regional, and sub-regional projects that jurisdictions submitted. The CAMPO Board approved a revised urban transit list, adjusted to meet fiscal constraints, for inclusion in the *2040 Plan*. The board also approved roads for state and federal funding.

The *2040 Plan* shows the transportation supply the CAMPO region can expect to have by 2040. Managing the transportation system efficiently and reducing demand for the system are the remaining options for improved mobility.

2040 PLAN
GET INVOLVED – GET MOVING

Chapter 3
Mobility Strategies

2040 PLAN
GET INVOLVED – GET MOVING

The primary strategy is to use limited transportation funds on projects and programs that have the greatest impact.

Chapter 3
Mobility Strategies

The CAMPO region's most significant mobility challenge is demand on the transportation system from continued rapid growth. CAMPO's primary mitigation strategy is to implement the projects and studies listed in Chapter Five. These represent the region's strategic allocation of limited resources to address today's congestion and safety concerns, while preparing for future demand.

This strategy is the backbone of the *CAMPO 2040 Regional Transportation Plan* and achieves significant improvement. However, even full implementation of the listed projects and studies is not sufficient to offset expected 2040 demand and related road congestion. The CAMPO region can further alleviate congestion by including a suite of travel demand management (TDM) and transportation system management (TSM) strategies, and by continuing support for the CAMPO Centers. Implementation of these strategies also addresses other CAMPO goals such as mazimizing economic competitiveness in the region and enhancing quality of life.

Increasing Capacity

Roads

The *CAMPO 2040 Plan* focuses on providing congestion relief along IH 35. The IH 35 corridor is consistently identified as one of the most congested segments of roadway in Texas, according to the Texas Department of Transportation. In 2011, state, federal, regional, and local transportation officials jointly initiated a plan to improve mobility and to reduce congestion on IH 35. The City of Austin and TxDOT initiated a study to identify and develop improvements to IH 35 in Travis County. The study was later expanded to include Williamson and Hays counties.

TxDOT, along with its regional partners, completed the implementation plan for IH 35 improvements in Travis County in 2013 and will update it annually. TxDOT expects to complete the IH 35 implementation plans for Williamson and Hays counties in 2015. Planning these improvements in separate segments allows for projects to be implemented in phases, as funding becomes available. The overall program of projects covers IH 35 from SH 130 in northern Williamson County to Posey Road in southern Hays County.

We're working to keep you moving.

The region will implement an IH 35 traffic management plan to keep traffic moving while IH 35 is under construction. Several near-term or recently completed projects on other major roads will help by improving alternate routes. These include:

- MoPac (Loop 1) and US 183N Express Lanes, which combine to provide an alternate north-south route for western Travis and Williamson counties;
- Bergstrom Expressway, which provides a north-south route for eastern Travis County; and
- SH 71E Express Lanes and Manor Expressway, which improve access to SH 130, an additional regional north-south route.

Express lanes under construction along MoPac (Loop 1) in Austin.

Plans include a Future Transportation Corridor (FTC) that will add one lane in each direction (initially in Travis County and ultimately through all three counties). CAMPO and TxDOT initiated environmental work for the FTC through a Planning and Environmental Linkages (PEL) study. The PEL study will determine the FTC's purpose and need, and evaluate lane type alternatives for further consideration in the environmental study conducted in accordance with the National Environmental Policy Act (NEPA). The PEL study will conclude in early 2015.

In addition to the FTC, the overall program of projects includes various types of improvements such as auxiliary lanes; ramp relocations and modifications; collector-distributor roads; intersection and frontage road improvements; bridge replacements; two direct connectors at US 183; and improved bicycle/pedestrian accommodations in the corridor. The FTC and overall program of projects are included in this plan for completion by 2025. Some projects have already been completed or are underway. See the project lists in Chapter Five for more information on the IH 35 implementation plans and overall program of projects.

Other road projects included in the *2040 Plan* preferred scenario also will help relieve IH 35 traffic and/or improve congestion or safety problems on other important roads in the region. Some projects will improve other north-south routes, such as the planned improvements

These images show the roadway space 69 people take up in a bus, bicyles, and cars. Transit and bicycles can reduce congestion.

Photo by the non-profit Cycling Promotion Fund: http://www.bikeoz.com.au/

for RM 620, FM 973, RM 1826 and US 290W.

Additional projects will reduce congestion at key points near or connecting to IH 35, such as US 79, FM 1626, and Post Road. The preferred scenario projects combined with other locally funded projects will provide significant mobility and access improvements for the region, as shown on Map 14.

The Central Texas Regional Mobility Authority (CTRMA) is an independent government agency that is implementing improvements to the transportation system in Travis and Williamson counties.

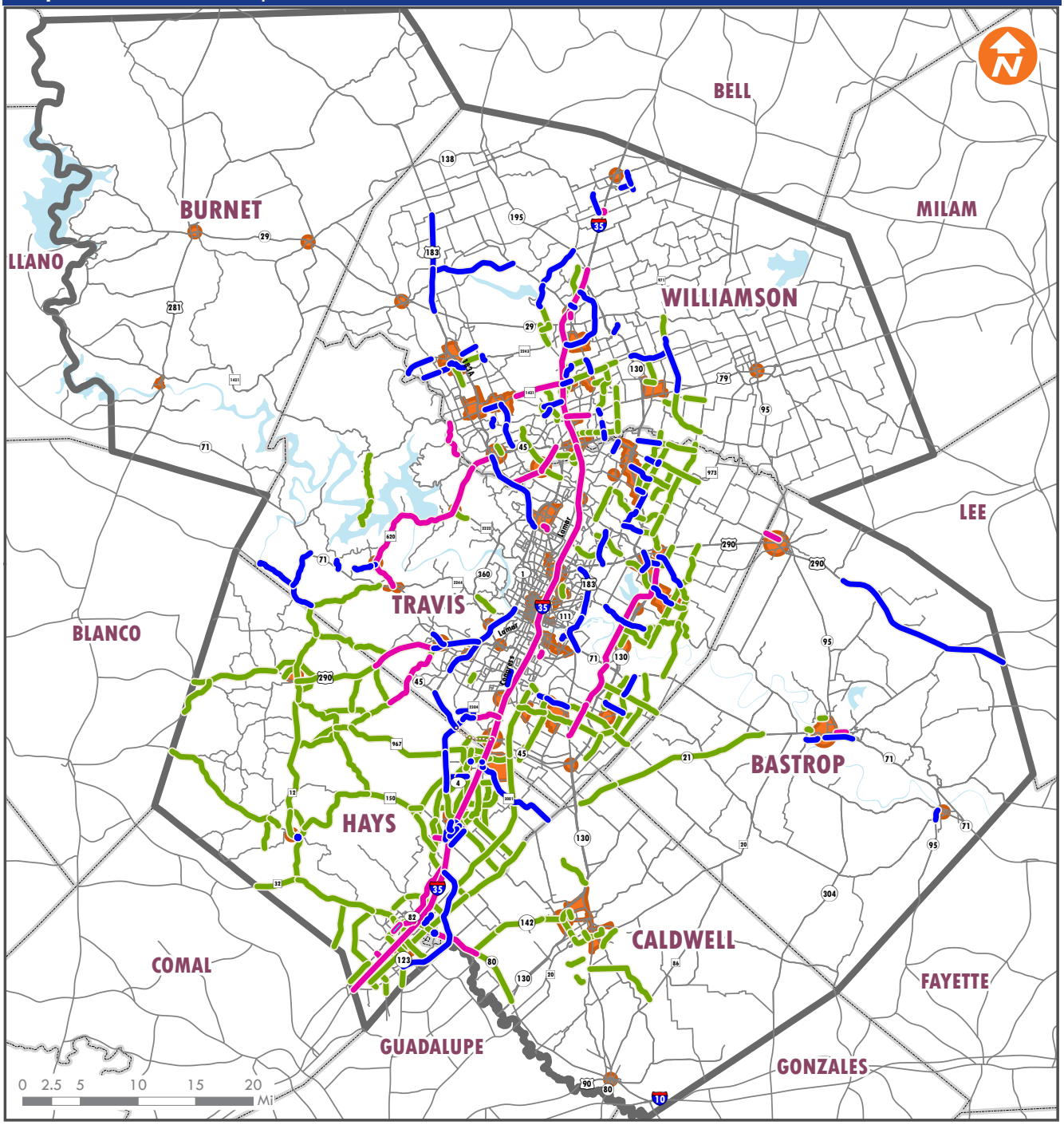
CTRMA is building toll roads, non-tolled roads, shared-use paths, and operating the Highway Emergency Response Operator (HERO) program. They currently operate US 183 A, and US 290E (Manor Expressway). Both of these highways have parallel shared-use paths.

At this time CTRMA is constructing the MoPac Improvement Project. When completed this project will include one managed lane in each direction on an 11-mile stretch north of the Colorado River. They are also constructing Maha Loop/Elroy Road (a non-tolled project).

CTRMA is currently investigating projects on MoPac south of the river, US 183N, US 183 between US 290 and SH 71E (Bergstrom Expressway), the intersection of US 290 and SH 71 (Oak Hill Parkway), and SH 45SW.

Capital Metro implemented Bus Rapid Transit in 2014, with future expansions planned as part of Project Connect.

Map 14: 2040 Road Projects with Centers



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Revised Plan Maps\CAMPO 2040 Plan Road Projects with Centers.mxd

Transit

Public transportation, and especially high-capacity public transportation, can move more people in a traffic-lane sized area than can individual cars. High-capacity transit is designed to move more people than a typical bus. This is generally accomplished by fewer stops, higher speeds, and more frequent service. Capital Metro, the City of Austin, and Lone Star Rail District, are exploring options for high-capacity transit in the capital area.

Expanded Transit Service

Service Plan 2020 is a comprehensive analysis of the entire Capital Metro bus system and provides a roadmap for growth between 2010 and 2020. *Service Plan 2020* guides the agency's actions to meet the current and projected transit needs through new and revised local bus routes, new MetroExpress bus routes and park-and-ride facilities, and a new frequent route network including MetroRapid.

Service Plan 2020 recommendations also seek to improve the transit system in the following ways: design bus services to better meet the needs of the region; increase transit ridership to mitigate traffic congestion and improve air quality; and increase cost effectiveness of bus operations.

Capital Metro has a policy to update its Service Plan every five years to respond to growth, changing demographics, and transit market demands. A new Service Plan will be developed in 2015 to address these changes, including the recent additions of MetroRail and MetroRapid. The new Service Plan will also incorporate elements of the *Project Connect Long Range Transit Plan* that fall within the agency's designated service area.

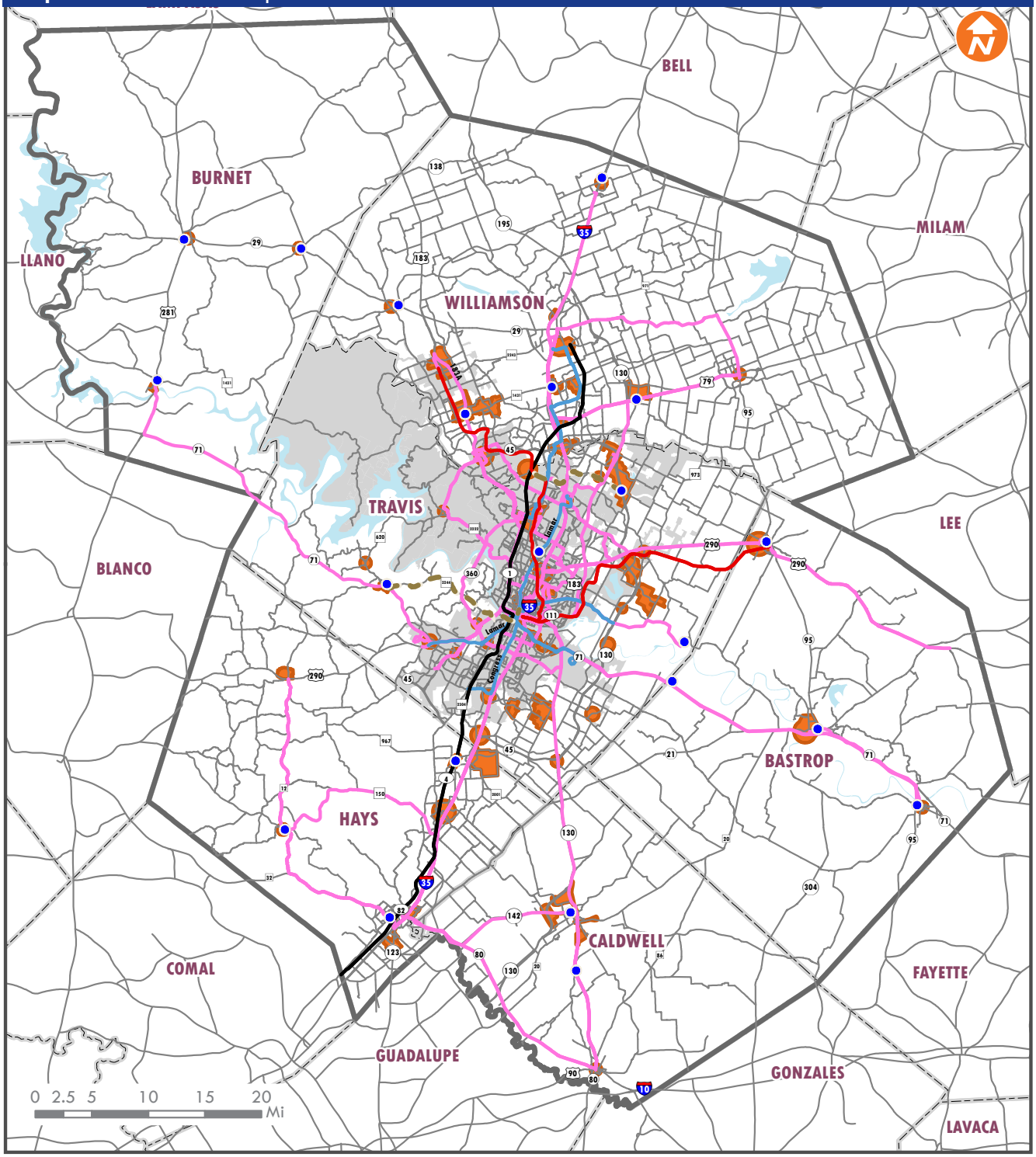
Capital Metro is working to extend transit services to cities in the capital area that do not dedicate sales tax money to support the system. Through their Service Expansion Policy, adopted in 2014, Capital Metro defines five approaches for service to jurisdictions within the Austin urbanized area (see Map 15) that are not currently members of Capital Metro. These options are:

Capital Metro is working to expand service.

- Join Capital Metro: A municipality, county, or portion of a county may hold a vote to join Capital Metro and support it with a 1 percent sales tax;
- Contract for Service: A jurisdiction may enter into a contract with Capital Metro to receive transit services;
- Form a Local Government Corporation (LGC): A jurisdiction, or group of jurisdictions, and Capital Metro may form an LGC for the purpose of overseeing transit initiatives;
- Become an FTA Sub-Recipient: A jurisdiction can contract directly with a service provider and funnel Federal Transit Administration (FTA) funding reimbursement requests through Capital Metro; or,
- Become a Direct Recipient: A qualifying jurisdiction may receive federal funds directly.*

**A complete description of these options can be found in Capital Metro's 2014 Service Expansion Policy.*

Map 15: 2040 Transit Projects with Centers

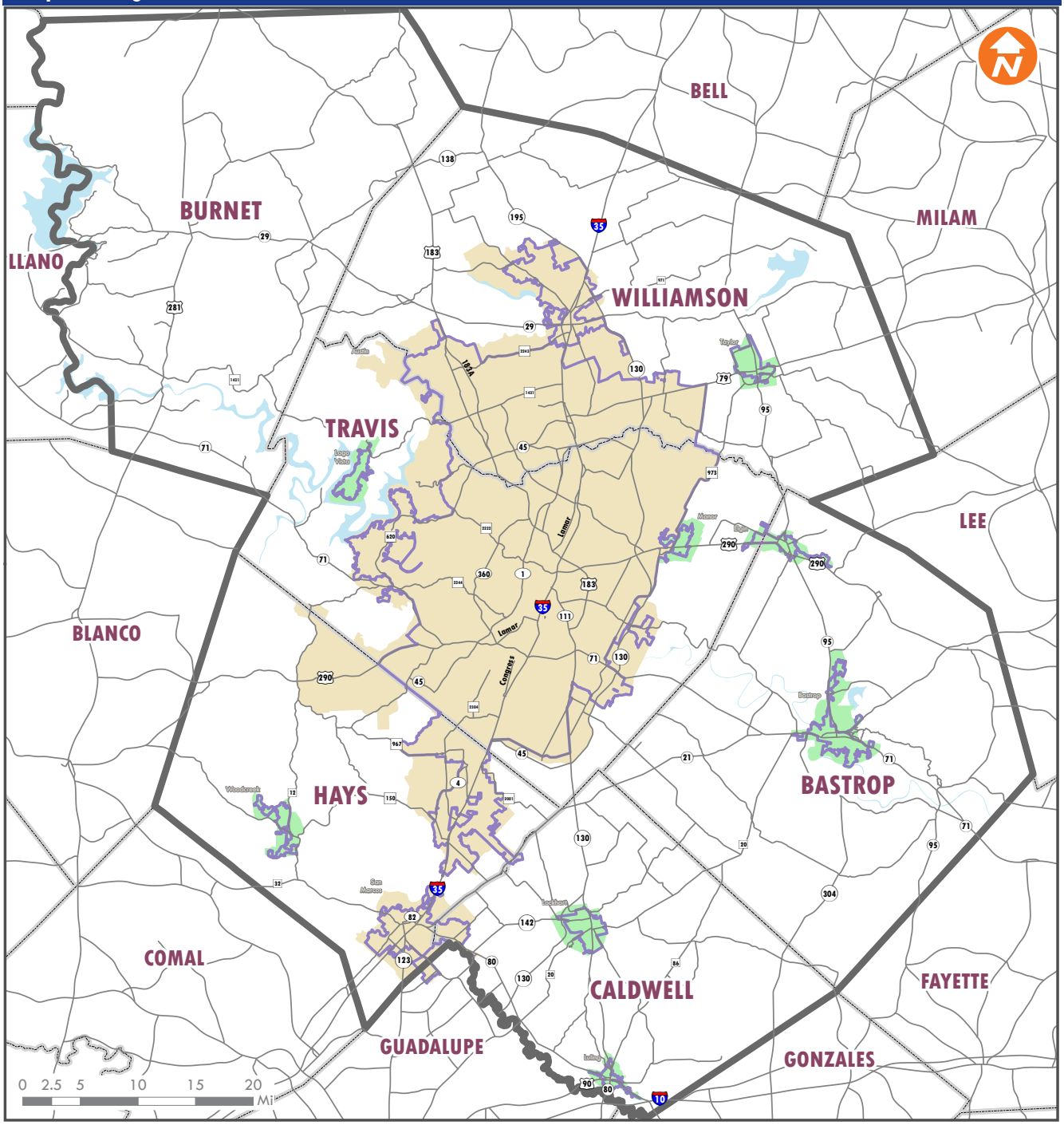


This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to campo@campotexas.org
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Transit Projects 2040 with Centers_09182015.mxd

- Commuter Rail
- Rapid Bus
- Future Concept
- Transit Center/Park & Ride
- Intercity Rail
- 2040 Plan Centers
- Express Bus
- CMTA Service Area

Map 16: Regional Urbanized Areas and Clusters



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO, Census Bureau

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Smoothed Urbanized Areas and Clusters.mxd

Census Urbanized Areas and Clusters
Smoothed Version by Type
Urbanized Area
Urbanized Cluster

Transit improvements included in this plan, such as the implementation of express bus service to Jarrell, Liberty Hill, and Wimberley, will provide new public transportation connections to Centers throughout the CAMPO area. Upgrades to existing service in the densest part of the area will increase capacity for travel via public transportation. Planned Bus Rapid Transit (BRT) projects will improve reliability and travel time for patrons. A complete list of planned projects can be found in Chapter Five.

Project Connect

Project Connect is the high-capacity transit system plan for the CAMPO region. The Transit Working Group, a committee of the CAMPO Transportation Policy Board, worked with regional partners both inside and beyond the Capital Metro service area to develop a long-range vision for Regional Rail, Commuter Rail, Urban Rail, Bus Rapid Transit, and Bus on Express Lanes. It will take a variety of jurisdictions and service providers to implement Project Connect. Several projects developed through Project Connect are included in the *2040 Plan* and outlined in Chapter Five. Additional information can be found online at *ProjectConnect.com*.

Lone Star Rail District

The Lone Star Rail District (LSRD) is an independent special district authorized by the Texas Legislature. It was established in 2002 to plan, develop, operate, and maintain passenger rail facilities between Georgetown and San Antonio along the existing Union Pacific freight rail corridor. LSRD is working with Union Pacific to relocate its through-freight rail traffic to a new corridor east of IH 35 from Taylor to Seguin. In 2014, LSRD began conducting environmental studies on the proposed freight bypass as part of the federal environmental approval process on the Lone Star Regional Rail Project. LSRD anticipates initial passenger service to begin by 2020. More information can be found at *lonestarrail.com*

Active Transportation

CAMPO uses three main strategies to select bicycle and pedestrian improvements. These are improving safety, completing gaps, and supporting existing Safe Routes to School plans (bicycle and pedestrian crash locations are shown in Chapter Four).

Safe Routes to School was a federal program that helped schools identify school-specific methods to increase bicycle and pedestrian access to their facilities. Guidance for development of these plans proposed several areas that potential plans might address: education of parents and students, engineering solutions (building or repairing infrastructure), and enforcement of traffic safety laws near the school.

Many communities in the CAMPO region are renewing their focus on bicycle and pedestrian

On-street bikeway separated from motorized vehicle traffic

Crosswalk dedication ceremony in Elgin, TX, 2014

mobility. They are investing in bicycle lanes, sidewalks, shared-use paths and other infrastructure such as bicycle parking, innovative signals, and landscaping. For example, CAMPO awarded funding in support of the City of Austin's bicycle-share program. The program, Austin B-cycle, makes bicycles available to central Austin residents, employees, and visitors. CAMPO also provided funding for Phase One of the MoPac Bicycle Bridge and for a sidewalk connecting a school and neighborhoods to Elgin's downtown district.

Federally funded projects must comply with the Americans with Disabilities Act (ADA). The ADA encourages implementation of pedestrian facilities with a high level of service for all users.

Future Bicycle and Pedestrian Infrastructure

CAMPO encourages implementation of bicycle and pedestrian infrastructure, particularly when this infrastructure can be included during road construction or rebuilding, when it is most cost effective. Several jurisdictions in the CAMPO region have plans to increase bicycle and pedestrian infrastructure.

Examples include:

- The City of Austin has a policy to provide infrastructure for bicycling and walking citywide.

Both bicycle and walking are effective means for short trips with walking trips ideally less than a mile and bicycle trips less than three miles.

Austin's 2014 Bicycle Master Plan sets a goal of capturing 15 percent of all trips three miles or less, and seven percent of those nine miles or less by creating a protected bicycle lane network. A recent survey by the City of Austin found that over half of respondents would ride in protected bicycle lanes while only 15 percent would ride in painted bicycle lanes. The survey also indicated that most trips three miles or less in length are near

thriving activity centers with the highest concentration in Austin's central city. To maximize the benefit of investment in bicycling to the region, the City of Austin's short-term priority is to build a protected bicycle network in areas with high concentrations of short trips, or that provide access to transit facilities, schools, and Centers.

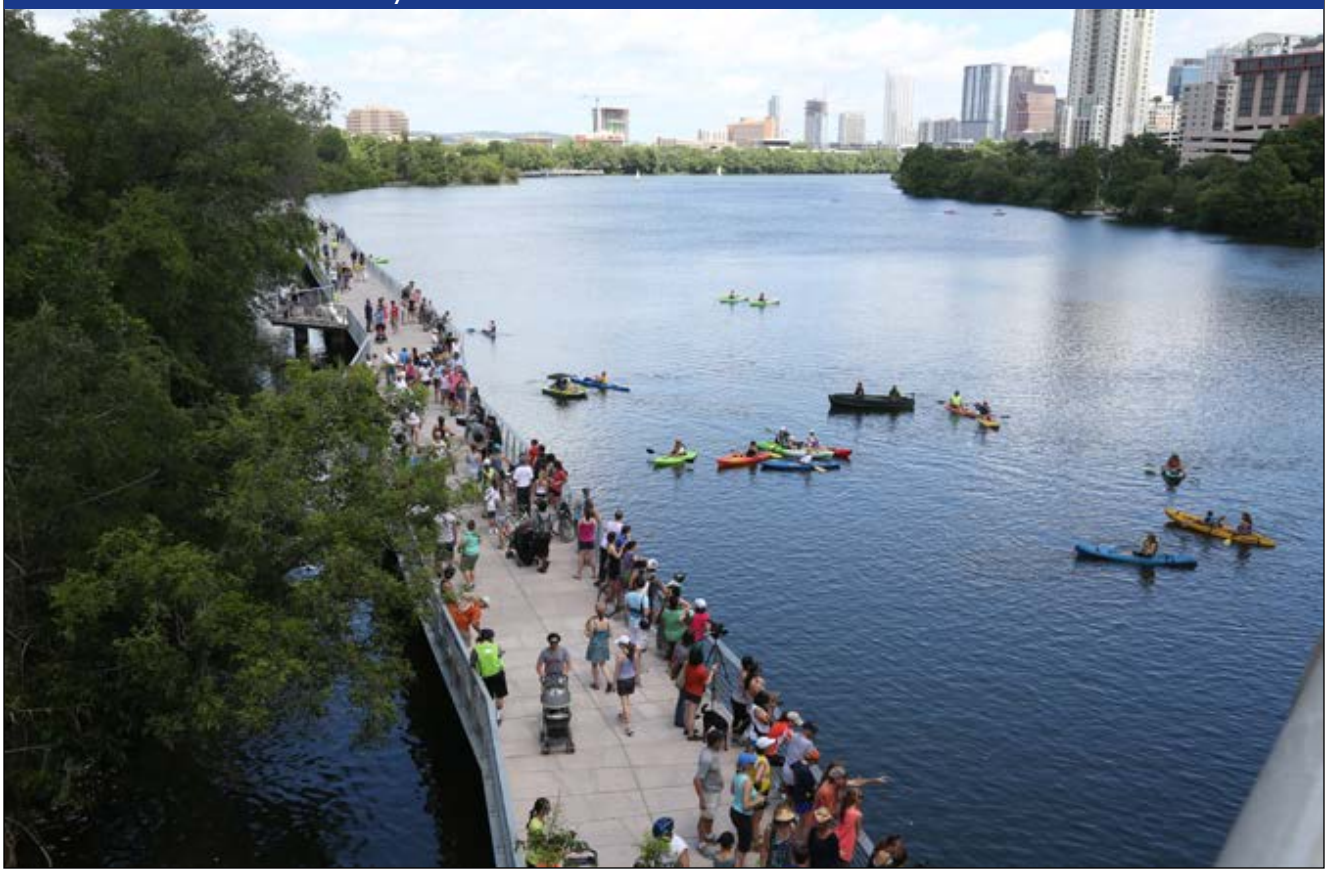
- Williamson County has its county trails plan that will add 672 miles of new trails, 21 miles of which have been identified as priority projects. Building them will close gaps in the system and result in more than 260 miles of connected trails in the county.
- The City of Elgin *Alternative Transportation and Trails Master Plan* provides design guidelines for infrastructure and proposes a system of trails, greenways, routes, and on-street linkages. Elgin has been implementing this plan since 2011.

CAMPO will be working with jurisdictional partners and agencies to create a Regional Bicycle Plan and update the Regional Bike Map (Map 17).

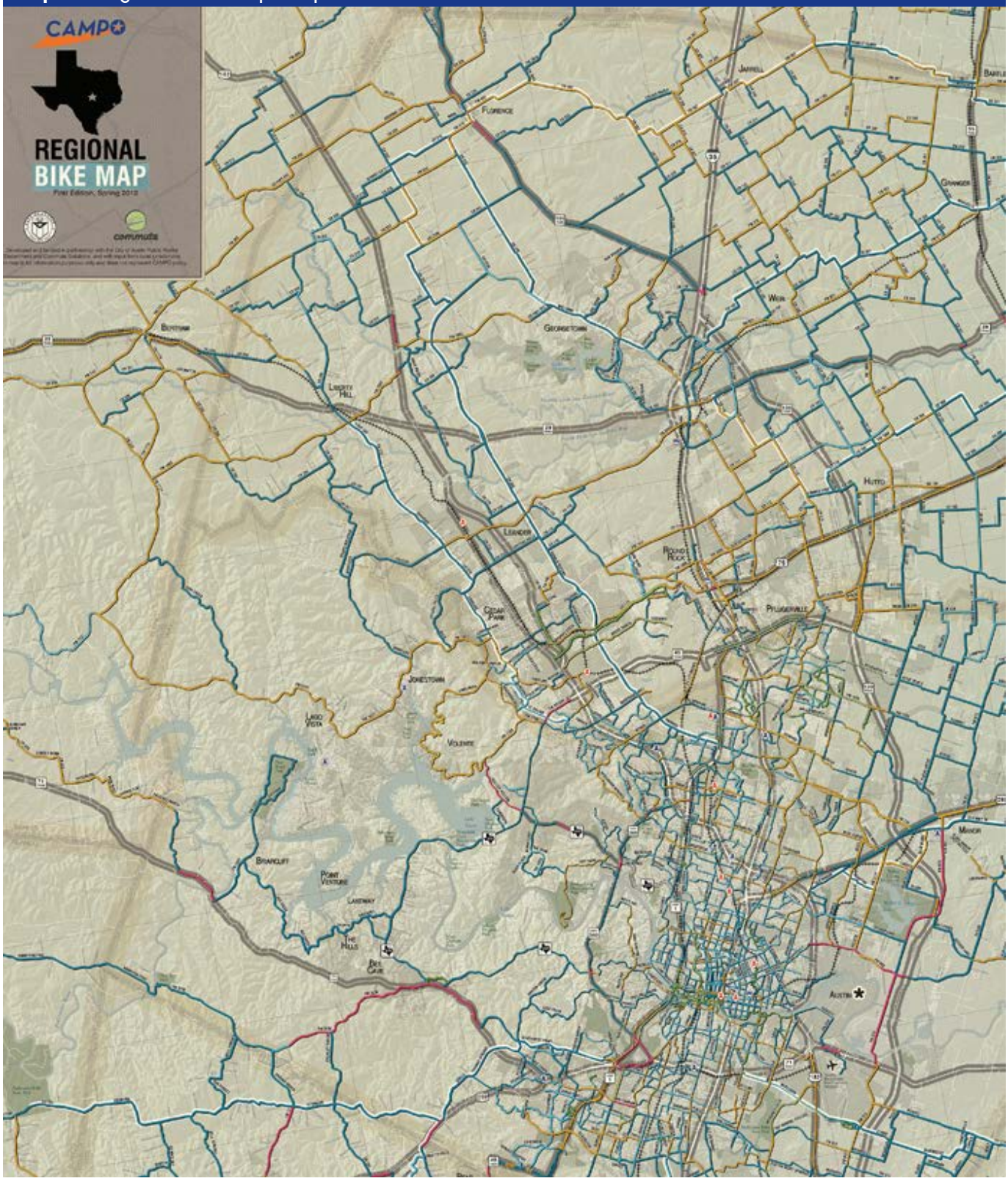
Funding for bicycle and pedestrian infrastructure is limited. Local jurisdictions often pay for these projects with local funds, or compete for scarce federal funds.

The federal Transportation Alternatives Program fund is one of the primary sources for stand-alone bicycle and pedestrian projects. Program dollars may be used for many types of transportation projects (e.g., scenic viewing areas, billboard removal, historic preservation of transportation facilities, environmental mitigation) and access to the funds is competitive.

The Boardwalk at Austin's Lady Bird Lake



Map 17: Regional Bike Map Snapshot



Aviation

As the Barbara Jordan Terminal at the Austin-Bergstrom International Airport (ABIA) is approaching its 11-million-passenger capacity, ABIA is undergoing a multi-project expansion that will carry it forward through 2040. The Terminal East Infill Project will add close to 55,000 square feet to the eastern section of the terminal and upgrade approximately 17,000 square feet of existing terminal space. Further, the Terminal East Infill Project is the first phase of a larger terminal expansion; additional expansion is scheduled for completion in 2017. This second phase of the terminal expansion project will add approximately 70,000 square feet. It will allow for an increase in passenger hold room space and will accommodate seven or eight new aircraft spaces. This second phase of expansion includes additional space for both the concourse and apron level terminal gates, and an expansion to the terminal apron. Completion of the two terminal expansion projects will allow ABIA to accommodate approximately 15 million passengers per year—an increase in terminal capacity of 27 percent.

Austin-Bergstrom International Airport

Completion, in 2015, of the new Consolidated Rental Car Facility (CONRAC) will co-locate all rental car operations into a single facility. The project also includes a new, 1.6 million square foot parking garage.

The final scheduled improvement to ABIA is the completion of Taxiway A. The completion of this taxiway will allow more options during episodes of high-density traffic on the taxiways and runways. This project is scheduled for completion in 2015.

Mobility Management

Transportation systems are successful when both the supply-side and the demand-side of mobility are addressed. The supply-side includes all the physical elements that compose a transportation system; it is everything from roads, to rail, to left-turn signals. The demand-side focuses on the way people use the transportation system; it looks at when, where, how, and why people travel.

Transportation System Management and Travel Demand Management are the two sets of strategies the *2040 Plan* uses to optimize supply and demand to keep people moving.

Transportation System Management Strategies

Transportation System Management (TSM) strategies increase the efficiency of the existing transportation supply. For example, management techniques such as congestion pricing, quick response to crashes, and the use of variable message signs can enhance the efficiency of existing elements of the transportation supply. The following are examples of TSM strategies:

- Intelligent transportation system (using technology to increase safety and efficient use of the system);

- Variable pricing (variable tolling based on traffic conditions);
- Roadside assistance (on-the-spot aid for stranded motorists);
- Access management (limiting the number and placement of driveways on a section of road);
- Motorist information systems (such as variable message boards notifying motorists of congested conditions ahead);
- Grade separation (overpasses and underpasses) at intersections;
- Intersection and traffic flow improvements (such as traffic light synchronization and dedicated turn lanes);
- Land use planning (when a mix of activities are located near each other there are fewer travel demands); and,
- Ramp metering (controlling the number and timing of vehicles entering the highway).

Transportation System Management in the CAMPO Region

The CAMPO region's transportation system includes many examples of effective TSM strategies. The following TSM activities are highlights of the technologies and programs that help to improve mobility.

Intelligent Transportation System

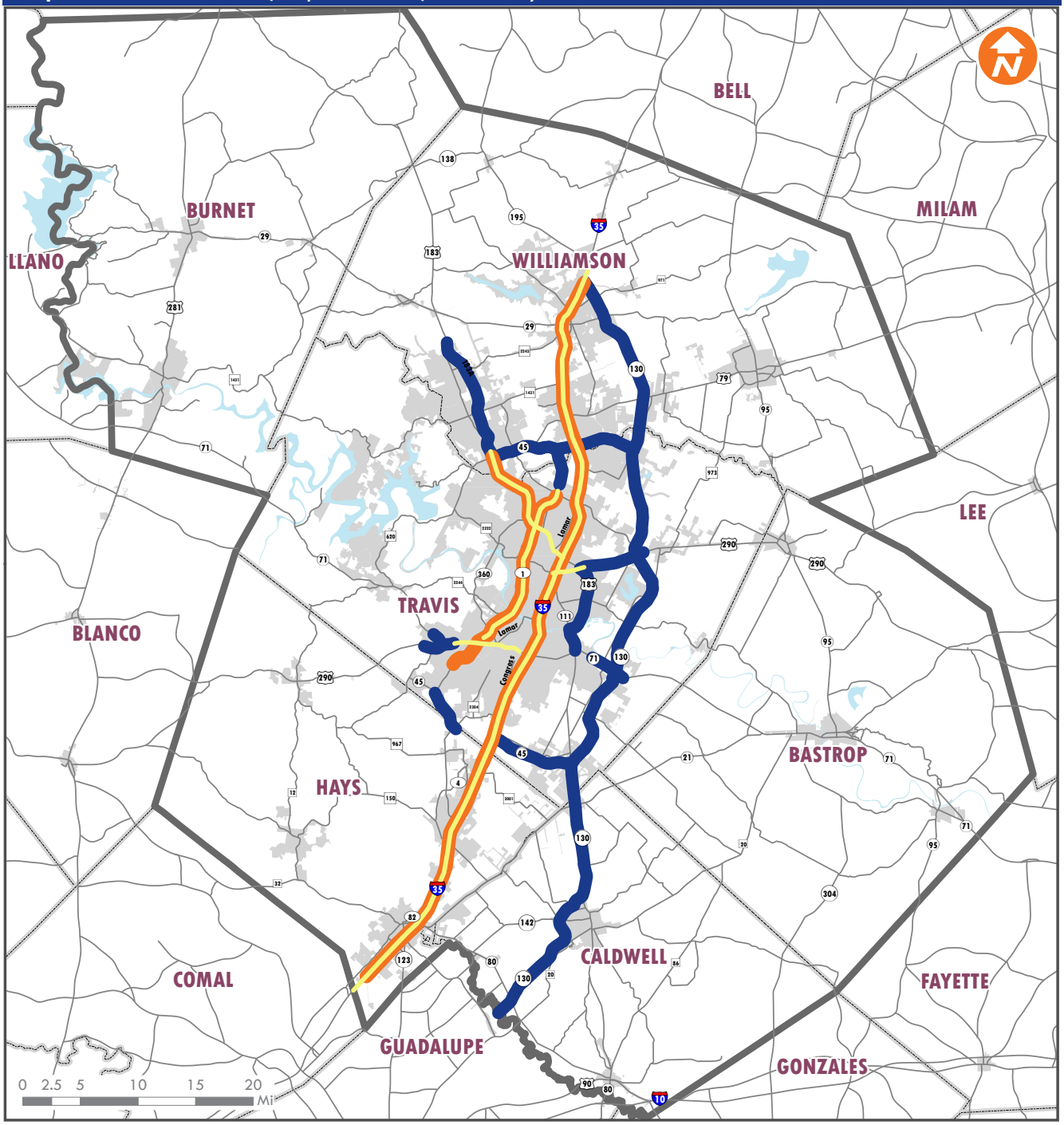
Intelligent Transportation Systems (ITS) enhance the safety and efficiency of transportation networks through the application of technology. ITS can reduce driver frustration by providing timely information related to traffic congestion caused by heavy volume or incidents. ITS can also provide alternative route recommendations or lane guidance. In addition, ITS can provide additional data collection capabilities to assist planners in analyzing and mediating regional congestion.

Some freeways in the CAMPO region have in place ITS technologies to increase system efficiency. They use, for example, ITS cameras, dynamic message systems, lane control signs and electronic toll collection. Map 18 illustrates the existing and planned highways that employ these technologies. ITS technologies are also used on various arterial streets in the CAMPO region. Examples of ITS technologies in use on arterial streets include: closed circuit television cameras, dynamic message

The supply-side includes all the physical elements that compose a transportation system; it is everything from roads, to rail, to left-turn signals. The demand-side focuses on the way people use the transportation system; it looks at when, where, how, and why people travel.

Artist rendering of planned variable message signs on IH 35

Map 18: 2040 Toll Roads, Express Lanes, and ITS Systems



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Toll Roads, Managed Lanes, and ITS System.mxd

ITS System
Tolled Express Lanes
Tolled Highways
City Limits

ITS cameras monitor and help to better manage traffic.

systems, radio systems, flood detectors, and signal systems.

The Austin Regional ITS Architecture plan was updated in 2014. It provides a framework for implementing ITS projects and information necessary to support interoperability among participating agencies. Using agreed upon standards allows for integrated long-range planning among Austin area stakeholders and also provides a framework for different organizations to share information and coordinate initiatives.

Variable Pricing

The Central Texas Regional Mobility Authority (CTRMA) is introducing variable pricing (also called dynamic tolling, or congestion pricing) to the CAMPO region. The MoPac Improvement Project, an 11-mile segment of the MoPac corridor, will include express lanes with variable pricing. The toll for the express lanes will fluctuate based on demand. When traffic is heavy in the main lanes and express lanes, and speeds slow, the toll rate will go up. When traffic is light, toll rates will go down. Variable pricing of the express lanes will maximize efficient operation of the lanes' capacity.

HERO

The Highway Emergency Response Operator (HERO) program aids stranded motorists on regional highways by offering free assistance such as changing flat tires, bringing gasoline, and taking stranded motorists to safe locations. Quickly clearing these incidents reduces travel delays for other motorists and reduces secondary crashes, thereby increasing operational efficiency and improving safety. CTRMA currently provides the HERO service, which operates on a 55-mile section of IH 35 from Yarrington Rd. in Kyle to SH 130 in Georgetown, as well as on a 12-mile section of US 183 between IH 35 and Lakeline Blvd. The service is available to motorists from 6 a.m. to 8 p.m. on weekdays.

TxDOT Integrated Corridor Management Plan

TxDOT is exploring Integrated Corridor Management (ICM) in the Austin area. As a tool to manage congestion relief on a road, ICM considers the supporting transportation network on either side of the target road for solutions to relieve congestion on the main road. For example, if a crash caused lanes on IH 35 to close, traffic could be diverted to a parallel road or the frontage road. Signal timing on those roads could be altered to accommodate the much larger than normal volume during the incident. Implementing such a system requires advance planning and real-time coordination

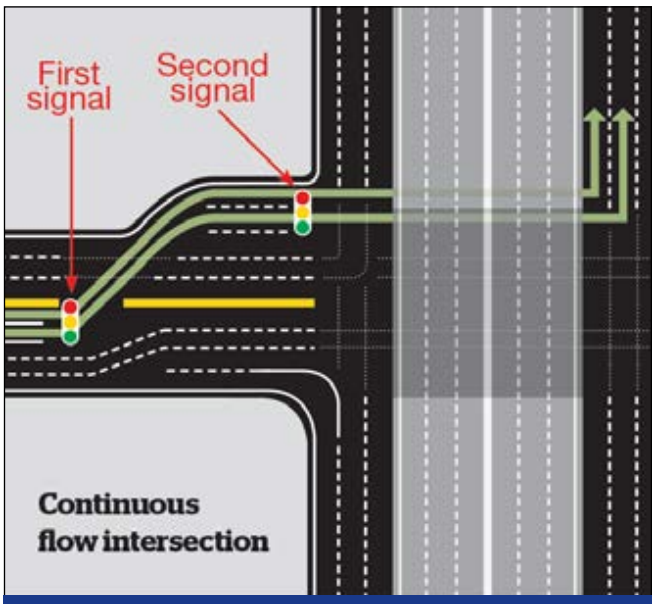


Figure 13: TxDOT is using Continuous-flow Intersections to keep traffic moving in San Marcos.

among all of the agencies that operate the transportation network.

An ICM plan is customized for a specific corridor. At this time, TxDOT is working with local jurisdictions to develop an ICM plan for IH 35 in Austin. The ICM will be developed in three phases. Phase One is development of the ICM Concept of Operations, better known as ConOps. Phase Two includes ICM deployment plans and system requirements. The final phase involves ICM site development, analysis, deployment, and evaluation.

TxDOT already has deployed certain elements of the ICM plan for IH 35, including message signs and travel speed sensors. TxDOT will add other ICM-related technological improvements as ongoing projects on IH 35 are completed. TxDOT's goal is to have full implementation in less than five years.

The final ICM plan will improve traffic management systems, and enhance operations as well as agency interoperability. Some of the strategies for this plan include innovative intersections, toll incentives for truck diversions, and continued operation of the HERO program.

Innovative Intersection and Traffic Flow Improvements

TxDOT, in coordination with local jurisdictions, is implementing innovative intersection designs on roads intersecting IH 35 in San Marcos and Round Rock, and at the Y in Oak Hill to improve safety, traffic flow, and efficiency.

TxDOT improved two intersections in San Marcos: IH 35 and SH 80 (Hopkins St.) and IH 35 and Loop 82 (Aquarena Springs Dr.) using "continuous-flow" designs (see Figure 13).

Continuous-flow intersections increase traffic flow by allowing left-turning traffic and through-traffic to move simultaneously. In a continuous-flow intersection the left-turning traffic is shifted to the outside edges of the road, well before the intersection, which allows through traffic to move through the middle of the intersection at the same time that traffic is turning left. The continuous-flow intersections improve safety by reducing potential crash points and improve traffic flow by allowing more vehicles to pass through the intersection. Both of the continuous-flow intersections opened in 2014.

TxDOT is using another innovative intersection design in Round Rock, with the installation of a "diverging diamond" intersection at the intersection of IH 35 and RM 1431/University Blvd. (see Figure 14).

The diverging diamond intersection shifts traffic to the left side of the road, across an intersection, allowing through-traffic and left-turning traffic to go through the intersection at the same time. The intersection design eliminates the need for a left turn bay and signal phase. It is particularly suited for intersections with high volumes of left-turn traffic. TxDOT selected this design to accommodate the turning movements to and from University Blvd. Collector-distributor roads will accommodate both northbound and southbound frontage road through traffic. The diverging diamond intersection improves safety by reducing potential crash points and improves traffic flow by allowing more vehicles to pass through the intersection. The intersection will be complete in 2015.

The City of Round Rock Corridor Coordinated Signal Timing Plans and Signal Upgrades

Transportation corridors with properly coordinated signal systems can move 30 percent to 50 percent more traffic than those with uncoordinated or poorly coordinated signal systems. This reduces delay and provides more reliable trip times. When signal systems are coordinated fewer vehicles stop in the corridor, reducing vehicle emissions from idling.

The City of Round Rock is improving traffic flow on key corridors by simultaneously upgrading the left turn signals to flashing yellow arrows and implementing newly optimized coordinated signal timing

Figure 14: TxDOT is using a Diverging Diamond Intersection to improve traffic flow in Round Rock

plans. The Gattis School Road, University Boulevard, and Old Settlers Boulevard corridors have these improvements in place. The City of Round Rock will install the upgrades to the RM 620 corridor in 2015.

The flashing yellow arrow signal display tells a driver to proceed with caution if the way is clear. Drivers understand the permissive nature of the flashing yellow arrow better than they do the solid green ball. As a result, fewer drivers make unsafe decisions at intersections (see Figure 15).

The flashing yellow arrow also provides greater flexibility in coordinated signal plans. It can be used on any signal mount and can be switched on and off during different time-of-day operation plans.

The cost of implementing coordinated signal systems is far less than the cost of traditional capacity improvement projects. Upgrading signal equipment to allow use of the flashing yellow arrow costs up to $15,000 each, and the traffic study and retiming project costs around $5,000-per-signal. Total coordinated signal project cost is approximately $20,000-per-signal or about $100,000-per-mile, assuming five signals per mile.

Figure 15: Flashing Yellow Turn Signals

The *CAMPO 2040 Plan* recognizes that success depends on managing both supply and demand on our regional transportation network.

Traditional capacity improvement projects typically require at least one additional lane at a cost of approximately $1 million-per mile, per-lane (not including right-of-way acquisition or utility relocation costs). The signal upgrade and timing project achieve, conservatively, a 10:1 cost savings compared to traditional capacity improvements.

Office of Mobility Management

Capital Metro and CARTS have created the Office of Mobility Management to maximize the efficient use of the public transportation system by providing information about transit trips that cross service boundaries. There are a wide variety of transit service providers across the ten-county region served by the Office of Mobility Management (which is larger than the CAMPO planning area). The Office of Mobility Management provides a single point of contact for information about all transit services in the area. People can make one call and find the service provider they need.

Travel Demand Management

Travel Demand Management (TDM) is the demand-side of mobility management; it complements the supply-side, or Transportation System Management (TSM). TDM looks at the way people use the transportation system and develops techniques to influence travel behavior (how, when, and where people travel). An effective TDM program can increase transportation system efficiency, reduce congestion, and achieve specific planning objectives (such as air quality improvements, or transportation affordability).

Travel Demand Management Strategies

TDM strategies emphasize moving people and goods efficiently, and minimizing congestion to the extent practicable. Most of these strategies require behavior change from transportation system users in order to be effective. TDM programs invite the entire community (from commuters and employers, to students, shoppers, and tourists) to reexamine their transportation choices and to make changes. The cumulative effects of individual travel decisions have significant benefits to the transportation system.

TDM strategies vary. They support a range of behaviors, from avoiding a trip altogether, to driving at "off-peak" times, to sharing a ride, using transit, or taking a bicycle. The following are examples of some classic TDM techniques:

- Park-and-ride facilities:
- Ridesharing programs/ incentives;
- Public transportation;
- Guaranteed ride home programs;
- Programs that encourage bicycle and pedestrian travel;
- Teleworking; and,
- Flexible work hours.

CAMPO promotes and supports flexible schedules and teleworking through Commute Solutions and other Travel Demand Management programs.

Teleworking and Flexible Work Hours

By allowing employees to work from home or utilize flexible schedules, employers can help to reduce demand on the regional transportation system during peak hours, effectively increasing the efficiency of the system. CAMPO promotes and supports flexible schedules and teleworking through its Commute Solutions program and other initiatives.

Teleworking allows employees to work from locations other than the office, usually from home. Technological advances such as high speed internet, webinars, video and teleconferencing capabilities make this an increasingly viable option for both employers and employees.

Flexible work schedules come in many variations. Some shift the start and end time of the traditional 8 a.m. to 5 p.m. work day to earlier or later times such as 7 a.m. to 4 p.m. or 9 a.m. to 6 p.m. Other flexible schedules compress a 40-hour work week into less than five days. Some employers offer compressed work week schedules to individual employees while other employers apply the schedules to all employees.

Examples of compressed work week schedules are:

Consecutive four-day work weeks allow employees to work four days-per-week, ten hours-per-day. In this plan, employees are divided into two groups. One group works Monday through Thursday and takes Friday off while the other works Tuesday through Friday, with Monday off.

Nonconsecutive four-day work weeks allow for days off other than Monday or Friday. Employees are divided into five groups and each group is assigned a different day off.

Benefits of Telecommuting and Flexible Schedules:

To the Employer

- Help meet trip reduction goals
- Increase productivity (20% increase is typical)
- Decrease turnover
- Reduce overhead
- Improve recruiting and retention opportunities
- Access new labor pools

To the Employee

- Increase productivity
- Increase flexibility
- Reduce commute time & cost
- Reduce stress
- Increase family and personal time

To the Community

- Reduce traffic congestion
- Improve air quality
- Lower fuel consumption
- Reduce demand on transportation infrastructure

9/80 Plan: This compressed work week is in a biweekly format. Full-time employees work nine days in each biweekly pay-period: five days one week and four days the next, still totaling 80 hours. Like the consecutive four-day week, employees are divided into two groups that take alternating Fridays off.

Through effective land use planning, we can minimize the impact of future growth by creating communities where residents can live, work and play without relying on a car.

Land Use Strategies

Land use and transportation are closely related. When you consider each household can produce about ten trips per day, 2,000 homes could add up to 20,000 trips to the existing transportation system. Land use and transportation planning is discussed in greater depth later in this chapter.

Parking Management

Parking management can shift some automobile travel to alternative modes and can help improve access by creating more clustered, multi-modal land use patterns. Some examples of parking management strategies which influence travel demand, and are being used in the region, include:

- Creating a greater opportunity for shared parking by encouraging compact and mixed-use development and improving walking and bicycling conditions;
- Pricing parking to reflect the cost of providing parking;
- Providing a parking "cash out" or other financial incentive to employees to use alternative modes;
- Renting or selling parking facilities separate from building space; and,
- Providing better user information and marketing relating to parking availability and price.

Austin B-cycle program

car2go car sharing program

Image courtesy car2go NA LLC

Ridesharing via Vanpool

The Capital Metro MetroRideShare program provides eligible groups of 5-12 people with a month-to-month vanpool lease agreement including insurance, maintenance, 24-hour roadside assistance, and optional fuel purchasing program.

Vanpool fares vary and are based on vehicle type, commute distance, group size, fuel and tolls. The monthly cost is shared by the number of riders. MetroRideShare provides groups with a monthly subsidy towards the vanpool lease. Vanpool groups must have an origin and/or destination in the Capital Metro service area.

Alternative Transportation Options in the CAMPO Region

Bikesharing

Bikesharing systems are enjoying popularity in major cities worldwide (e.g., Paris, London, Washington, D.C.). They provide simple, short-term bicycle rentals/returns at multiple kiosk locations. The bicycles are widely used by both tourists and residents. Bikesharing systems help with the "last mile" challenge of getting transit users from their arrival stations to their final destinations. The non-profit Austin B-cycle company began its bikesharing operations in Austin with a handful of stations in December 2013. It broke national records for bicycle check outs during the March 2014 SXSW Festival, and has more than 40 stations operating in downtown, south, and east Austin as of early 2015. (*Bcycle.com*)

Carsharing

Carsharing services offer short-term rentals of cars, often by the hour. They give drivers convenient access to vehicles, without the costs and responsibilities of ownership. Zipcar and Daimler's

Mobile app-based carpool programs are changing travel in Austin.

car2go both provide carsharing service in Central Austin.

Ridesharing

Ridesharing mobile apps offer the possibility of real-time carpool matching. For example, Carma Carpooling pairs people with similar commute routes and schedules to facilitate carpooling, all through a real-time smart phone app. Passengers share the cost with the driver via the app's convenient electronic payment system.

The Carma pilot program was developed to test the benefits of real-time ridesharing technology and value pricing, and how it affects toll road travel behavior and traffic congestion. The program was launched in Austin in February 2014 through a grant from the Federal Highway Administration and in partnership with TxDOT, Central Texas Regional Mobility Authority (CTRMA), and Texas A&M Transportation Institute (TTI). In February 2015, Carma partnered with TxDOT to expand toll refunds for carpoolers to all Austin-area toll roads. The current pilot program has been extended through June 2015.

Transportation information mobile apps provide real-time, aggregated information about the full suite of available mobility options, routes, and schedules. One such mobile app that is active in Austin is RideScout. Other cities where RideScout operates include: San Francisco, Boston, Albuquerque, El Paso, and San Antonio.

Transportation Network Companies

Transportation Network Companies (TNCs) use smartphone technology to connect passengers with drivers who use their personal, non-commercial vehicles to provide rides for a fee. In October 2014, the Austin City Council passed an interim ordinance legalizing TNCs as legal ground transportation service providers in Austin. Two TNCs, Uber Technologies Inc. and Lyft Inc., operate in the greater-Austin area.

TDM Programs in the CAMPO Region

Travel Demand Management strategies succeed by influencing the choices of many people and many organizations. Implementing these programs requires the cooperative efforts of a wide variety of partners within the region. CAMPO works with these partners to facilitate TDM initiatives through the Commute Solutions Program.

Commute Solutions

CommuteSolutions.com

The CAMPO Commute Solutions program serves as an informational and educational resource center for residents, employees, and visitors who travel to and within the six CAMPO counties. Commute Solutions is a voluntary trip reduction program that was created in response to federal requirements for designated Metropolitan Planning Organizations, like CAMPO, to manage congestion, improve air quality, and promote energy conservation. The program offers information and resources on transportation options such as carpools, vanpools, transit, bicycling, and walking, as well as provides information on work schedule alternatives such as flextime, compressed workweeks, and teleworking. Commute Solutions of Central Texas comprises coalition partners from regional businesses and governmental entities (see Table 11).

CAMPO Regional Ridematching Site

myCommuteSolutions.com

The myCommuteSolutions.com website provides encouragement, incentives, and support for commuters to use alternative modes (such as walking, cycling, ridesharing, public transit, and teleworking), alternate work hours, and other efficient transportation options.

The myCommuteSolutions website is a ridematching and trip planning tool that allows

Table 11: Regional Commute Solutions Partners

Advanced Micro Devices (AMD) www.amd.com	Downtown Austin Alliance (DAA) www.downtownaustin.com
American Lung Association www.lung.org	Hertz www.hertz.com
Austin Community College (ACC) www.austincc.edu	Lower Colorado River Authority (LCRA) www.lcra.org
BikeAustin www.bikeaustin.org	Movability Austin www.movabilityaustin.org
Capital Area Council of Governments (CAPCOG) www.capcog.org	Safe Routes to School www.saferoutesinfo.org
Capital Area Rural Transportation System (CARTS) www.ridecarts.com	Texas Commission on Environmental Quality (TCEQ) www.tceq.state.tx.us
Capital Metropolitan Transportation Authority (Capital Metro) www.capmetro.org	Texas Department of Insurance (TDI) www.tdi.texas.gov
car2go www.car2go.com	Texas Department of Transportation – Austin District www.txdot.gov
City of Austin www.austintexas.gov	Travis County www.traviscountytx.gov
Central Texas Regional Mobility Authority (CTRMA) www.mobilityauthority.com	The University of Texas at Austin (UT) www.utexas.edu
CLEAN AIR Force of Central Texas www.cleanairforce.org	Zipcar www.zipcar.com/austin
Clean Air Partners www.cleanairpartners.net	

registered users to search for commuting partners, explore sustainable travel options, search single trip matching, and log their commutes for incentives and data collection. By logging their commute, users can track fuel and money saved, calories burned, and emissions avoided.

A key feature of *myCommuteSolutions.com* is the ability to offer employers, cities, universities, colleges, and organizations a custom sub-site at no cost to the individual or employer. Employers can use the myCommuteSolutions framework to set up their own ridematching and trip-planning site. They can manage incentives, collect data, and promote the program to suit their needs.

Samsung, the City of Austin, Travis County, Texas State University, NetSpend, Austin Community College, and others are using custom myCommuteSolutions sub-sites.

Downtown Transportation Management Association

MovabilityAustin.org

Movability Austin, formed as a non-profit in 2011, is the first Transportation Management Association (TMA) in Central Texas. Movability works with downtown Austin employers and the 125,000 people who enter and leave downtown daily.

Movability currently works with 13-18 employers at a time, implementing programs to make mobility options – telework, flexible work schedules, transit, shared rides (car or van pool), bicycling, or walking – as attractive to employees as is driving alone during rush hours. Movability works closely with each employer to develop a program that is tailored to the company's needs.

Movability continues working with each company for three to five years, as needed, to support shifts in commuting culture. During this time, Movability offers employees and managers access to web-based information and trainings, as well as in-person educational opportunities and personal travel planning.

As the downtown TMA, Movability works with transportation agencies, service providers, and various stakeholders to explore larger scale solutions. For example, Movability is part of the team (including Capital Metro, the City of Austin, Austin Chamber of Commerce, Austin+SocialGood, and the Thrival Company) that launched the "20/20 Mobility Solutions Initiative" (*mobilitysolution.org*), in which employers pledge to reduce drive-alone commutes by 20 percent.

City of Austin

AustinTexas.gov

The City of Austin has approximately 12,000 employees who commute to work daily. The City has established trip reduction strategies to reduce vehicle miles traveled to and from work by City of Austin employees. The goal is to reduce the impact of City employees' commutes on traffic congestion and ozone production but also to reduce energy consumption, reduce automotive maintenance, and improve employee wellness. The City offers tools and reinforcement for employees to be successful at reducing their drive-alone trips:

- Transit Pass Subsidy
- Vanpool Subsidy
- Paratransit Subsidy
- Telecommute Options
- Compressed Work Week
- Rideshare Matching for Carpools
- Bicycling Assistance Programs
- Bicycle Share Program Discounts
- Electric Vehicle Charging Stations
- Car Share Program Discounts
- Incentives for Alternative Mode Use
- Trip Reduction Training Programs
- Parking Cash Out Program

Congress Avenue, Austin

The City of Austin is a founding member of Movability. The City also supports the Greater Austin Chamber of Commerce effort to reduce large private employers' employee trips by 20 percent by 2020.

Texas Department of Transportation

TxDOT.gov

TxDOT is working actively to reduce roadway congestion. This includes examining its workforce programs and policies for ways to reduce peak-time work trips. TxDOT employees already have several trip reduction strategies available including teleworking, flextime, and compressed work week. Many employees also participate in car/vanpooling and use transit (bus or train) to get to work.

In 2014, TxDOT partnered with the Texas A&M Transportation Institute to work with an internal team of TxDOT employees to research and recommend a comprehensive Peak-Time, Work-Trip Reduction Program for TxDOT employees. They recommended a trip-reduction pilot start in the fall of 2015.

TxDOT launched a pilot teleworking program in winter 2014. As part of the program, teleworkers and supervisors were trained and required to track their teleworking days in a system that gathers data on the impact of the pilot telework program. New technology was also part of the pilot. Twenty-five participants were included in the first pilot phase, with plans to expand every few months for six to 12 months thereafter.

TxDOT also continues to hold discussions with other local partners to strengthen its existing trip reduction efforts:

Some Potential Congestion Mitigation Alternatives

- TxDOT and Capital Metro started discussions about funding discounted employee transit passes to TxDOT employees;
- TxDOT and MetroRideShare are working together to better coordinate TxDOT's van pool participation;
- TxDOT started discussions with CAMPO's Commute Solutions program about developing a service for TxDOT employees to help them plan trips and locate fellow TxDOT carpool partners;
- TxDOT is making arrangements to support an Austin B-cycle station near one of its downtown campuses so that employees can replace short driving trips for work meetings, errands, or other purposes with a quick bicycle ride;
- TxDOT partnered with Movability Austin to support Austin area employee peak-hour, drive-alone trip reduction by 20 percent by 2020;
- TxDOT worked with Carma Carpooling, maker of a ride matching app, to incentivize Central Texas drivers to commute together on TxDOT toll roads; and,
- TxDOT's Austin District is partnering on an Integrated Corridor Management Initiative, associated with its IH 35 Improvement Program.

Austin Community College District

austincc.edu

The Austin Community College District (ACC) has several initiatives to make alternative transportation options available to faculty, staff, and students. ACC uses the following programs in its efforts to reduce congestion:

- Green Pass: $25 per semester for unlimited rides on all Capital Metro bus and rail services.
- Carpool Program: ACC has started a Commute Solutions ridematching program and offers preferred parking spaces to carpool vehicles.
- Bicycle Program: There are bicycle racks at every ACC campus. ACC Highland Campus has shower facilities for bicycle commuters and a bicycle repair station. ACC Rio Grande Campus has two Austin B-cycle stations with membership discounts for faculty, staff, and students.
- Car Sharing: There are Zipcar and car2go vehicles available at select campuses with discounted membership for faculty, staff, and students.
- Education and Outreach: ACC has ongoing activities to encourage transportation options, includ-

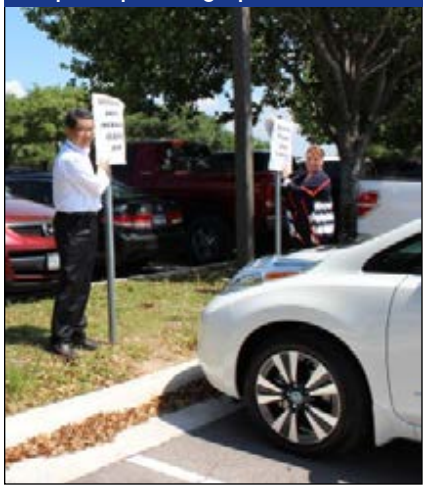
ing targeted campus outreach for carpool ridematching, community mobility partner information sessions, Bicycle to ACC Day, Earth Day activities, Green Team activities and campus emails encouraging alternate modes of transportation and carpooling.

Samsung Austin Semiconductor

Samsung.com/contactus/austinsemiconductor

Samsung Austin Semiconductor is one of the largest employers in Austin and actively promotes commuting that relieves congestion on Austin's roads. The company also educates its employees about the environmental and social benefits of using mass transit, carpooling, and bicycling to work as part of its corporate commitment to sustainability.

Samsung president Youngwook Park unveils new reserved carpool parking spots.



car2go Smart Car

To promote these alternative commuting methods they have adopted the Commute Solutions web application and customized it for their company. This has allowed employees to connect with other employees who live near each other and ride together to work.

Samsung Austin Semiconductor also has regular contests through the company's Green Team that reward employees who take alternative commutes to work with the chance to win gift cards and other prizes from local sustainable businesses. Within the first nine months of launching the program, more than 175 employees created accounts and logged more than 5,000 alternative commute trips. Samsung Austin Semiconductor also provides showers for their employees who bicycle or walk to work and provides preferred parking spots for employees who carpool to work.

The Commute Solutions website, *SASRidshare.com*, is part of their comprehensive effort to promote sustainable business practices and lifestyles. Samsung Austin Semiconductor promotes the Commute Solutions program through their Green Team meetings and website as well as the Earth Day and Employee Benefits Fairs as an important part of their strategy to operate as a sustainable business.

City of Round Rock

RoundRockTexas.gov

The City of Round Rock previously contracted with CARTS for transit services. Beginning in June 2012, the City began providing Demand Response Bus Service under a turnkey contract for citizens living in the city limits. In 2013, the City expanded the service beyond its city limits and, in 2014, added a job-access reverse commute route from Capital Metro's Tech Ridge Park and Ride to Sears Teleserv in Round Rock. The system is in high demand and continually operates at capacity.

In December 2014, the City awarded a contract for the preparation of a Transit Master Plan (TMP). The TMP will be a road map of future transit options the City Council can implement incrementally, as expansion is needed and funds are available. It will look at all options available for providing transit services, continued third party

contracting, bringing the service in-house, and contracting with Capital Metro. The TMP options will also take into consideration regional transit activities, such as Project Connect; other public transportation providers, such as Capital Metro and CARTS; and other municipality's transit activities, such as Georgetown and Pflugerville. In addition, the City will continue to partner with community entities who desire to bring more transportation options to the region.

The Austin Chamber of Commerce

AustinChamber.com

The Austin Chamber of Commerce takes an active interest in the CAMPO region's transportation. They host the annual State of Transportation event, encourage TDM initiatives for their member organizations, and commission major transportation research projects. Their *2013 Mobility Report*, developed by the Texas A&M Transportation Institute, identified three TDM strategies (telework, flexible scheduling, and shifting travel mode away from driving alone) in its top five traffic solutions.

TSM and TDM help make the most of the existing transportation system.

Estimating Impacts of TDM and TSM Strategies

CAMPO conducted an analysis to evaluate the potential effects of various Travel Demand Management (TDM) and Transportation System Management (TSM) strategies on the region's transportation system.

Using the travel demand model, CAMPO analyzed four theoretical scenarios to assess the potential congestion reduction benefits of TDM and TSM strategies.

CAMPO's TDM and TSM analysis is similar to one conducted by the Texas A&M Transportation Institute (TTI) for the Greater Austin Chamber of Commerce *2013 Mobility Report*. TTI quantified the congestion reduction benefits from potential strategies to gauge the magnitude of reductions needed to maintain congestion at 2010 levels through 2035. Results indicated that maintaining 2010 congestion levels would require full implementation of the *CAMPO 2035 Plan* plus additional TDM and land-use strategies.

The *CAMPO 2040 Plan* analysis focuses on quantifying the congestion reduction benefit achieved through full implementation of the *2040 Plan*, plus those achieved through implementing three TDM strategies and one TSM strategy.

Both TTI's and CAMPO's analyses use TTI's Travel Time Index to measure the congestion reduction benefits associated with the various strategies.

The Travel Time Index is the ratio of congested travel time to uncongested travel time. If there is no congestion, the Travel Time Index is 1.00. A Travel Time Index of 1.75 means that it takes 75 percent longer to make an average trip under congested conditions (usually the morning and evening peak periods) than it took to make the same trip during non-congested times of day.

However, CAMPO and TTI calculate the regional Travel Time Index differently. For the *2013 Mobility Report*, TTI calculated the 2010 regional Travel Time Index of 1.31 based only on the higher-level roads (highways, expressways and major arterials) and focused on the urbanized area. For the *CAMPO 2040 Plan* analysis, we calculated the 2010 regional Travel Time Index based

Table 12: Scenario Descriptions for the TDM and TSM Analysis

Scenario	Name	Description
Benchmark	2010 Baseline	2010 traffic
Benchmark	2040 No Build	2040 traffic if the region does not implement any transportation projects after 2020.
Strategy 1	*2040 Plan*	2040 traffic with full implementation of the *2040 Plan*.
Strategy 2	Increased Teleworking Removes 75,000 vehicle trips from the a.m. peak period and removes 283,000 person trips per day	2040 traffic assuming teleworking reduces work trips by 10%, applied to the service sector jobs in the region, plus Strategy 1.
Strategy 3	Peak Shift 56,000 vehicle trips are removed from the a.m. peak period	2040 traffic assuming 5% of work trips in the morning period (6-9 a.m.) shift to an earlier or later time period, plus Strategy 2.
Strategy 4	Mode Shift 36,000 vehicle trips are removed from the a.m. peak period	2040 traffic assuming 10% of single-occupant vehicle (SOV) trips shift to other travel modes, plus Strategy 3. The mode shift only applies to SOV trips to/from zones where an alternate travel mode is available at both ends of the trip.
Strategy 5	Transportation System Management (TSM) Increases road capacity system-wide by 6.7%	2040 traffic assuming increased capacity on freeways and arterials due to TSM measures implementation, plus Strategy 4. Specific TSM measures are: ▪ Incident Management: Increase capacity by 2.15% on all freeways ▪ Access management: Increase capacity on major arterials by 6% ▪ Traffic signal timing and coordination: Increase capacity by 5% on all non-freeway roads

on all roads in the CAMPO regional network and focused on the six-county CAMPO planning area. The 2010 Travel Time Index for the *2040 Plan* analysis is 1.18. Both analyses use the 2010 Travel Time Index for comparative purposes.

Using the travel demand model, CAMPO measured and compared several scenarios, reporting results using the regional Travel Time Index.

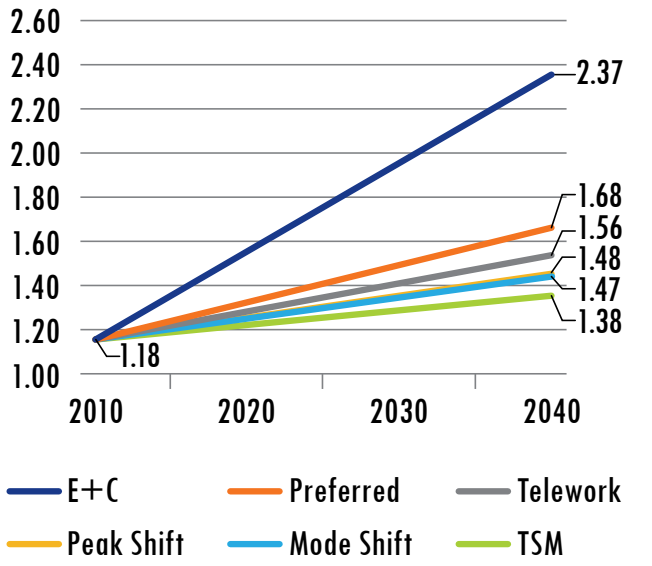
CAMPO evaluated all scenarios for performance in the morning peak period (6 a.m. to 9 a.m.). Based on regional data, CAMPO calculated, and applied, implementation rates for all TDM and TSM strategy scenarios.

The *2040 Plan* and the strategy scenarios build upon each other, producing cumulative results. The results illustrate a range of possibilities. The analysis cannot predict the strategies' actual levels of adoption or implementation; but it can show how various "what if" scenarios might work. See Table 12 for a description of the scenarios.

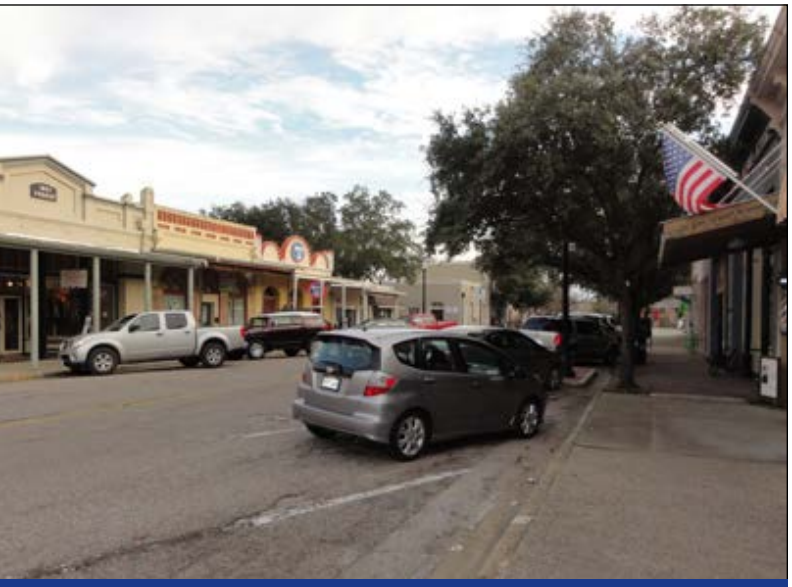
Results indicate that implementing the *2040 Plan* achieves the greatest improvement to the Travel Time Index, lowering it from 2.37 in the no-build scenario to 1.68 in the *2040 Plan* preferred scenario. Implementing TDM and TSM strategies in the region could dramatically improve the Travel Time Index, lowering it from 1.68 to 1.38. Without a dramatic change in land use patterns or travel behavior it is not possible to reduce the Travel Time Index to the 2010 level predicted by the model. See the technical memo titled *Quantification of TDM and TSM Strategies for the 2040 Plan* for additional information on the analysis.

Many travel demand and system management strategies are in use in the CAMPO region and are realizing positive results. Implementing agencies have a variety of planned TSM projects that will improve traffic flow and travel time. The list of grouped projects in Chapter Five shows some, but not all, of these planned TSM projects.

Figure 16: Regional Travel Time Index



TDM and TSM projects are often less expensive than traditional added capacity projects (e.g., adding lanes to a road) and offer cost effective additional strategies with which to mitigate congestion. The CAMPO region should plan, implement, and maintain a strategic, coordinated program of TDM and TSM strategies to maximize the effectiveness of the existing and planned transportation system.



Historic downtown Bastrop

Land Use

Where people live and need to go influences travel patterns and traffic congestion. Altering land use can affect travel demand and the need for improvements to different elements of the transportation system. For example, when different uses are closer together, people are more likely to walk or bicycle, thereby increasing demand for sidewalks, safe street crossings, and shade.

Centers Definition

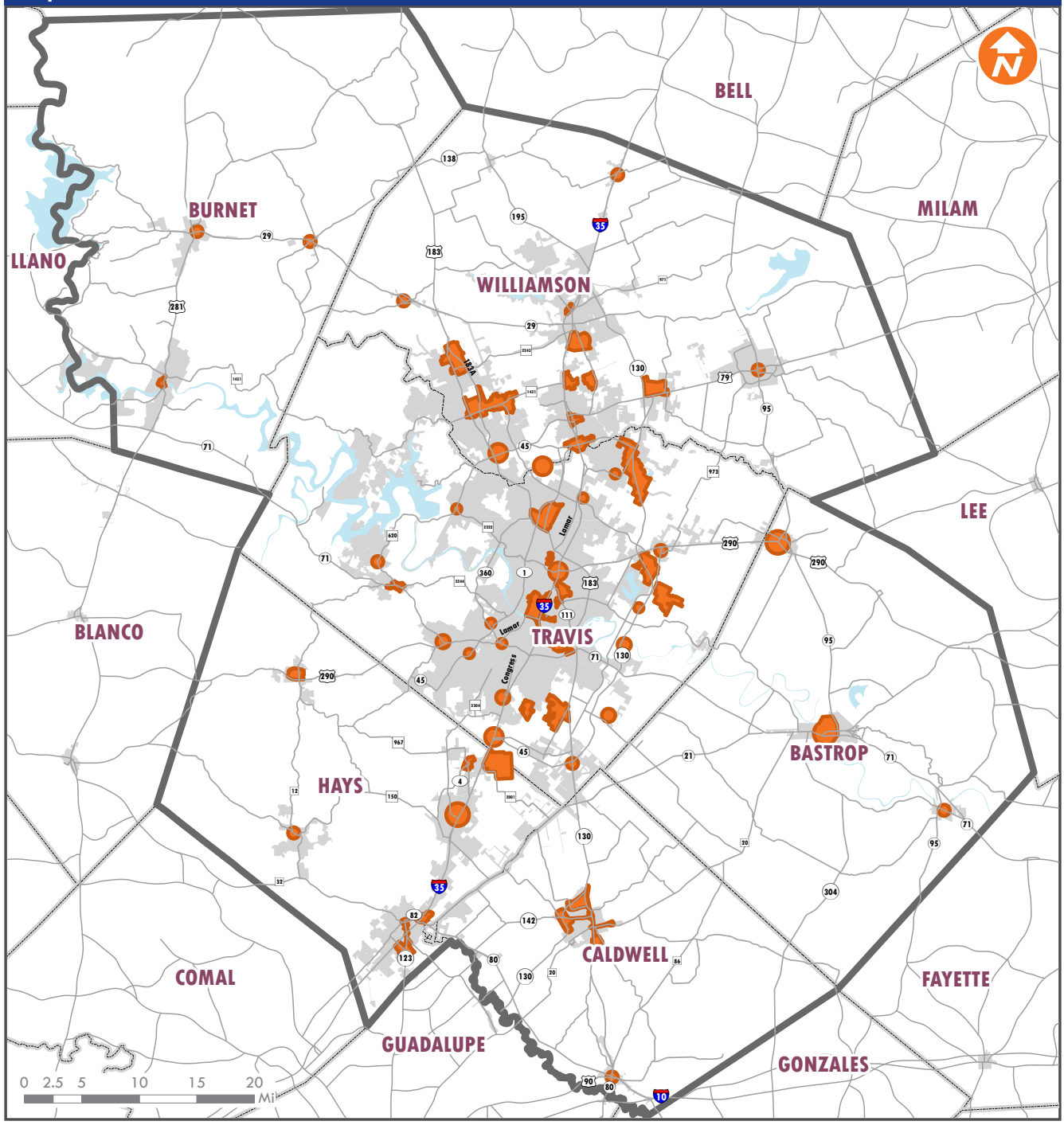
CAMPO first used the concept of Centers as a transportation strategy in our *2035 Plan*, building on the outcome of the Envision Central Texas process. Centers are now a central theme in the comprehensive plans of many jurisdictions in the CAMPO area. In the *2035 Plan*, Centers were identified conceptually with a dot on a map and categorized as small, medium, and large. During development of the *2040 Plan*, CAMPO worked with jurisdictional partners to define boundaries for Centers consistent with local plans.

The CAMPO Board has also adopted a definition of Centers. The Centers for the *2040 Plan* are shown in Map 19.

Centers, designated by the Transportation Policy Board, are locally-approved planning districts, either nodal- or linear-based, supported by their jurisdictions and other implementing agencies that are:

- A framework for regional multi-modal transportation corridor and network planning;
- Built and planned mixed-use environments that possess the density, diversity, and design attributes that produce lower vehicle-miles traveled and support transit, bicycling, and walking; and
- Incorporating, at the discretion of the local government, the following CAMPO Centers Guidelines (Table 13) and Notes (as follows):

Map 19: CAMPO Centers



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\CAMPO Centers.mxd

2040 Plan Centers
City Limits

Table 13: CAMPO Centers Guidelines

Center	Guidelines			
	Activity Density	Transit Service	Scale	
			Minimum	Maximum
Regional Center	75/acre	High-Capacity	100 acres	NA
Town Center	45/acre	High-Capacity or Local		640 acres
Community Center	25/acre	Local		
Village Center	10/acre	NA		250 acres

Activity Density – Total population and employment per acre based upon the maximum development potential of selected areas in approved local land use or development plans that meet the recommended target ratio of jobs to population in Figure 17.

Transit – 'High Capacity Transit' modes include existing or planned Regional Rail, Commuter Rail, Urban Rail, Bus-Rapid Transit, or Managed Lanes. 'Local' transit is existing or planned local bus service provided by Capital Metro, CARTS, or another provider.

Village Centers – Incorporated cities outside of the 2010 Austin and San Marcos Census Urbanized Areas that would otherwise not have a Community or other Center may designate a single Center that meets this Activity Density threshold.

Centers Clusters – Multiple Centers that are adjacent or connected along a major transportation corridor can be designated as a Centers Cluster.

Each Center will develop based upon the existing built environment and locally approved plans.

In this way each Center will ultimately develop in a way that is tailored to the desires and characteristics of the local community, and many of the Centers shown on the map will evolve differently over time.

There are expected to be some common features among Centers, once they reach maturity. They would be:

- More intensely developed than the surrounding areas;
- Pedestrian-oriented (many destinations within walking distance, safe and convenient pedestrian facilities);
- A mix of employment, housing, and retail; and,
- Connected to surrounding neighborhoods and the region by a range of transportation

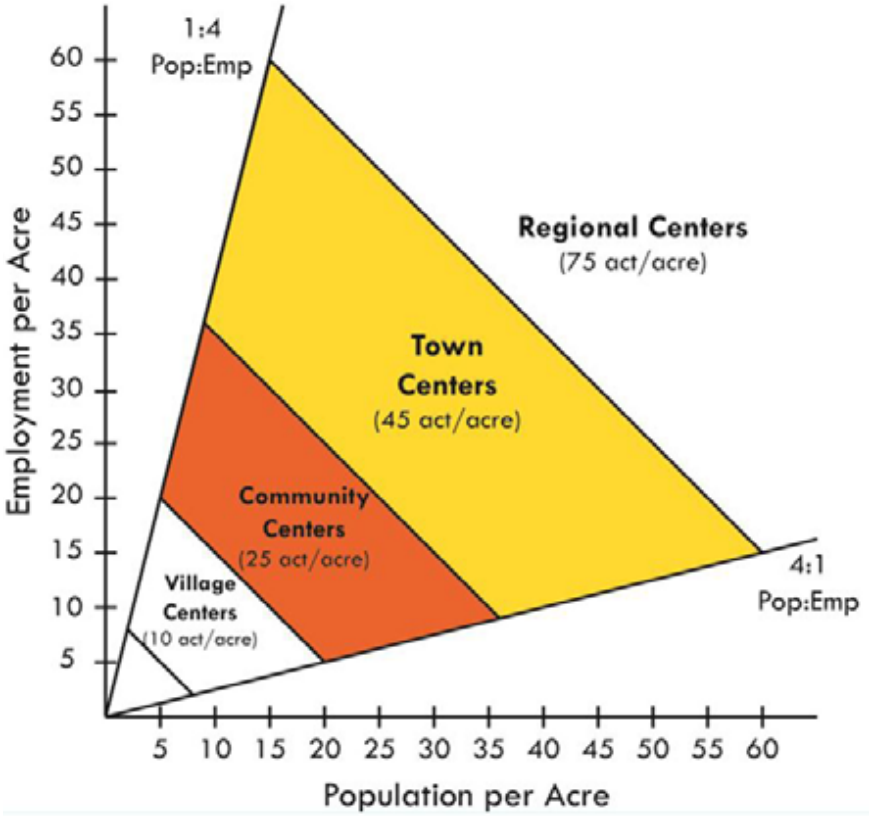


Figure 17: Activity Density and Ratios in Centers

Austin has redesigned local streets like Guadalupe St. in keeping with its Complete Streets policy.

options, including public transportation, highways, arterials, and bicycle and pedestrian connections (the mix of modes would be determined by the overall context of the location).

Centers Benefits

- **Strategic planning of major transportation investments.** Defining areas of focused growth supports the identification of priority transportation corridors, and helps in planning major additions to the regional network including highway improvements, rail, and fixed guideway public transit.
- **Demand management.** Encouraging a mixed-use, higher-density land use pattern supports the ability of residents to live, work, and play in the same area and can reduce demand on the regional roadway network by:
  - » Allowing more trips to be made via alternatives to single occupant vehicles, and
  - » Encouraging trips that don't use the transportation network.
- **System efficiency.** Encouraging higher density development in specific locations can allow the region to better meet future needs within available transportation resources, by developing a transportation system that costs less per capita.
- **Improved Accessibility and Equity.** Encouraging a land use pattern that can be adequately served by alternatives to the private automobile including transit, biking, and walking improves the accessibility and equity of the transportation system by providing everyone with the ability to access the region's opportunities.
- **Improved Connectivity and Transportation Choice.** Encouraging development to cluster in activity centers can increase the overall connectivity of the transportation system,

particularly within Centers, and can increase choices among transportation modes and routes.

- **Improved Safety.** Encouraging a mixed use, higher density land use pattern can improve the overall safety of the system by improving the safety of pedestrian and bicycle facilities and by helping to reduce the amount of time that individuals spend in private vehicles, reducing their exposure to vehicle crashes. [1]
- **Economic Benefits.** Supporting local and regional economic vitality and competitiveness strengthens fiscally sustainable communities.
- **Supporting Local Plans.** Providing a regional plan that encompasses and integrates local visions for future land use helps local jurisdictions.

In 2009 CAMPO commissioned a study by researchers at the University of Texas at Austin to quantify the potential changes to travel in the CAMPO region (then five counties) in mixed use areas. The researchers worked with local planners to identify mixed use areas throughout the five county region. They then used data from the 2005 Austin Activity Travel Survey to calculate the influence of mixed-use areas on travel. They found that mixed-use areas reduce demand on the transportation system because:

- There is a 40 percent higher internal capture rate in mixed use areas (a trip begins and ends in the same traffic analysis zone);
- There are more zero or one-car households in mixed-use areas;
- Households in mixed-use areas travel on average a shorter distance per day; and,
- Network connectivity and the presence of sidewalks also influence mode choice in mixed-use areas.

While we cannot quantify the changes that may happen, this study indicates that in the CAMPO region, mixed-use areas are already producing the desired benefits of shorter trips and more trips by non-automobile modes.

Centers Implementation

CAMPO will develop a formal designation process for Centers and include them in our annual Growth Monitoring Report to track changes in those areas. Also, examples of Centers implementation can be found in local plans.

The Travis County Commissioners Court approved its Land Water and Transportation Plan (LWTP) in December 2014. The LWTP, which was completed by the County's Transportation and Natural Resources Department, provides a framework for protecting land and water resources, building a comprehensive transportation system and efficiently delivering related services to the unincorporated area of Travis County. The plan looks to balance development with conservation while expanding options people have when choosing where to live, work, and play and how they travel. Part of those options include encouraging growth that follows CAMPO's Centers supported by transportation corridor development that accommodates multiple modes. The plan and more information on the LWTP can be found at https://www.traviscountytx.gov/tnr/lwtp.

Complete Streets

A complementary idea to Centers is Complete Streets. Complete Streets are designed, operated, and maintained to accommodate all travelers: walkers, bicyclists, transit users, and automobile drivers. The U.S. Department of Transportation provides guidance regarding accommodation of all users on a street. In 2014, the City of Austin adopted a Complete Streets Policy. It states that Complete Streets:

1. Serve all users and modes;
2. Require connected travel networks;
3. Are beautiful, interesting, and comfortable places for people;

[1] *Federal Highway Administration:* http://safety.fhwa.dot.gov/ped_bike/ped_focus/docs/fhwasa0512.pdf

4. Require best-practice design criteria and context-sensitive approaches;
5. Protect Austin's sustainability and environment;
6. Include all roads and all projects and phases;
7. Are the work of all City departments; and,
8. Require appropriate performance measures.

The City of San Marcos has revised their street standards as part of their efforts to implement their comprehensive plan – Vision San Marcos. The plan calls for a multimodal transportation network. This has been implemented in their new SMARTCODE. The code defines what type of bicycle and pedestrian accommodations must be included on which types of streets.

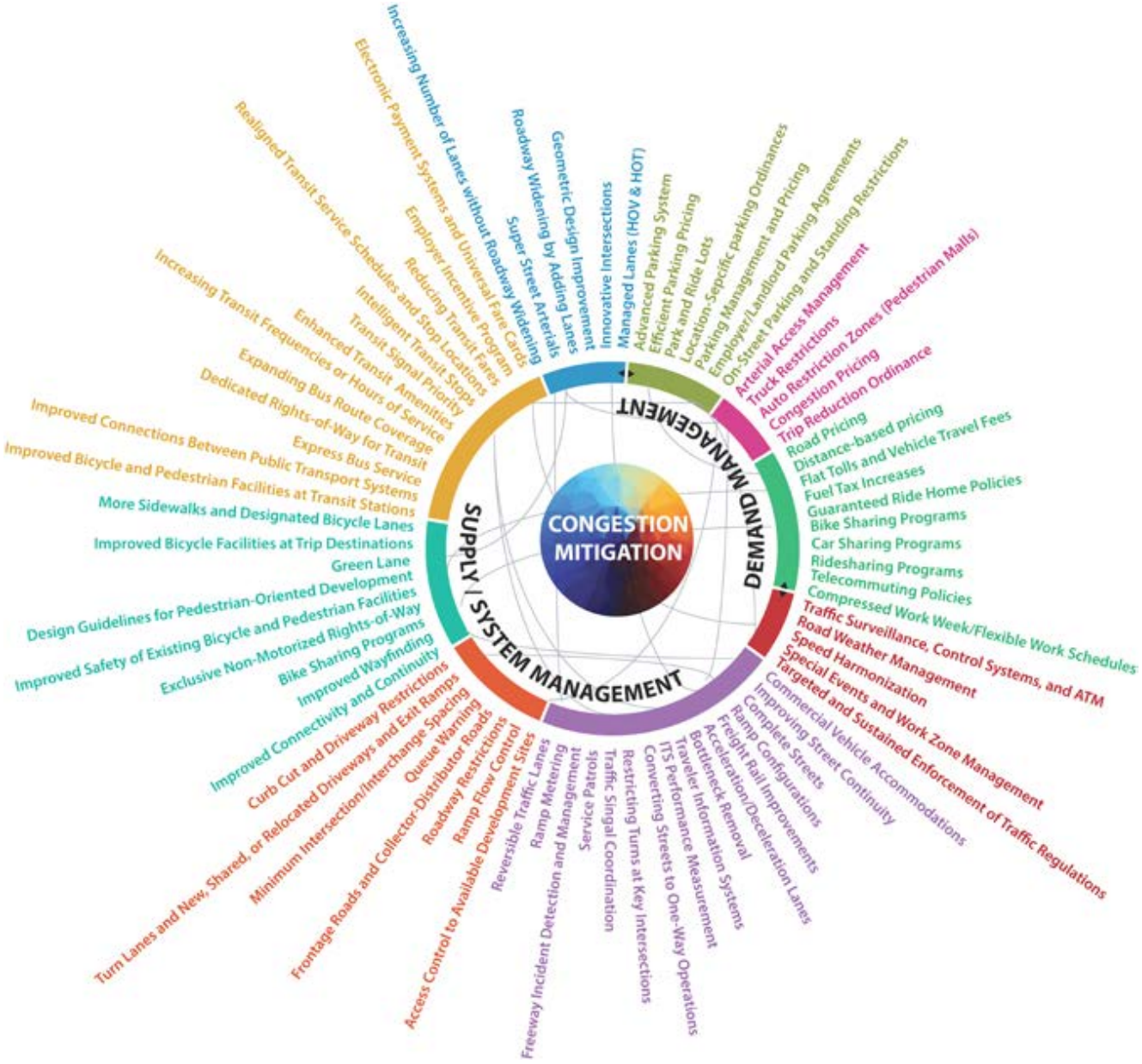
Congestion Management Strategies

CAMPO is dedicated to alleviating congestion as much as possible through a variety of strategies. CAMPO's 2012 Roadway Congestion Analysis (RCA) contains a congestion mitigation toolkit, with solutions that cover nine major congestion management topics:

- Access management;
- Bicycle and pedestrian strategies;
- Other operations;
- Parking;
- Roadway strategies;
- Regulatory strategies;
- Transit strategies;
- Transportation demand management; and,
- Transportation system strategies.

Figure 18 is a graphic called the "Congestion Mitigation Strategy Sunshine," which illustrates the multitude of strategies available in the congestion mitigation toolkit. The congestion mitigation toolkit offers a list of specific strategies that detail each strategy's benefits and implementation costs with a given time frame and potential partners. The list of strategies can be found in Appendix H. Strategy time frames range from short-term (one to five years) to long-term (10+ years) projects. For additional information on congestion mitigation see the full report on *campotexas.org*.

Figure 18: Congestion Mitigation Strategy Sunshine



2040 PLAN
GET INVOLVED – GET MOVING

Chapter 4 Planning Considerations

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

2040 PLAN
GET INVOLVED – GET MOVING

This plan reflects the opportunities and challenges of planning mobility for a growing and diverse region.

Chapter 4
Planning Considerations

This section describes additional factors CAMPO considered in developing the *2040 Plan*. These include cost, available funding, social equity, and environmental considerations. These factors shaped the selection of the transportation improvement projects in the *CAMPO 2040 Regional Transportation Plan* preferred scenario.

Financial Forecast

Financial analysis is vital to plan development. Fiscal constraint is a federally required element of every long-range regional transportation plan. Plans may only include projects for which funding can reasonably be expected during the life of that plan.

The financial analysis for the *CAMPO 2040 Plan* contains the most accurate and timely information available. It uses the TRENDS model, developed by the Texas A&M Transportation Institute (TTI), to determine estimated amounts of federal/state funding sources. All 25 Texas Metropolitan Planning Organizations (MPOs) are able to use this model. It allows each MPO the flexibility to analyze effects of future income scenarios. A subcommittee of the CAMPO Technical Advisory Committee used this model to produce the financial forecast for this plan.

State and federal funding comes to CAMPO through TxDOT. Rule 16.53 of Title 43, Texas Administrative Code describes the state highway program's various funding categories. The TRENDS model provides analysis for four of those categories. CAMPO used TxDOT's 2014 Unified Transportation Plan for future funding estimates in the other categories.

In November 2014, Texas voters approved Proposition 1, an amendment to the Texas constitution that authorizes increased allocations for highway improvements. The amendment allows for the diversion of some general revenue from the economic stabilization fund (informally known as the Rainy Day Fund) into the state highway fund. The *2040 Plan's* budget includes estimates of the CAMPO region's share of those funds.

Voters in several of CAMPO's member jurisdictions approved transportation funding bonds in 2014. Revenues that will become available because of those elections are included in the local funding portion of the *2040 Plan*.

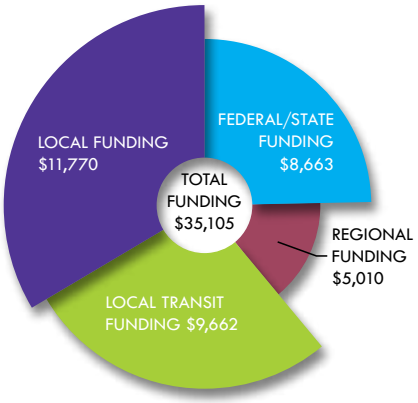


Figure 19: 2040 Revenue Forecast Summary (All figures in $ millions)

CAMPO used local entities' revenue estimates (when available) to develop local revenue projections. CAMPO estimated revenues for local entities when needed. According to these revenue estimates, available local resources appear sufficient to meet the requisite match for all anticipated federal funding sources requiring a local match. A detailed description of the information can be found in Appendix I.

Projections from the TRENDS analysis and local revenue projections allow CAMPO to develop a financial forecast for regional transportation funding through 2040.

2040 Plan Project Costs

Project sponsors usually provide project cost estimates. If sponsors did not submit costs, CAMPO calculated the costs for their road projects (except for limited-access highways) using a cost calculator

2040 Plan Revenue Forecast

Table 14: Summary of Anticipated Revenues (in $ million)

FHWA/TxDOT/ Proposition 1	2015-2024	2025-2030	2031-2040	Total
Category 2-Metropolitan Area Corridor Projects	$325.40	$83.50	$275.70	$684.60
Category 7-Surface Transportation Program Metropolitan Mobility	$333.60	$318.70	$835.30	$1,487.60
Category 9 - Transportation Alternatives	$75.90	$74.10	$191.50	$341.50
Category 11 - District Discretionary	$42.30	$40.10	$105.20	$187.60
Other TxDOT Mobility Funding	$82.25	$ -	$ -	$82.25
TxDOT Preservation Funding	$678.13	$420.28	$700.46	$1,798.87
Proposition 1	$1,000.00	$600.00	$1,000.00	$2,600.00
TOTAL	$2,537.58	$1,536.68	$3,108.16	$7,182.42

Regional Funding Sources	2015-2024	2025-2030	2031-2040	Total
Central Texas Regional Mobility Authority	$1,631.15	$ -	$ -	$1,631.15
Lone Star Rail District	$1,467.06	$636.63	$1,061.06	$3,164.75
Regional Infrastructure Fund	$37.00	$62.00	$115.00	$214.00
TOTAL	$3,135.21	$698.63	$1,176.06	$5,009.90

Federal Transit Funding	2015-2024	2025-2030	2031-2040	Total
Urban Transit (FTA 5307 & 5340)	$288.59	$174.69	$293.00	$756.28
Rural Transit (FTA 5311)	$41.69	$34.40	$87.70	$163.79
Elderly and Disabled Transit	$9.28	$7.98	$20.80	$38.06
Bus and Bus Facilities (FTA 5339)	$21.51	$12.91	$21.51	$55.93
New Starts (FTA 5309)	$389.25	$27.18	$49.89	$466.32
TOTAL	$750.32	$257.16	$472.90	$1,480.38

Local Transit Funding	2015-2024	2025-2030	2031-2040	Total
MTA Sales Tax	$2,339.14	$1,985.63	$4,005.62	$8,330.39
CMTA Fares and Other Income	$349.59	$239.23	$428.56	$1,017.38
CARTS Fares and Other Income	$104.55	$75.00	$135.00	$314.55
TOTAL	$2,793.28	$2,299.86	$4,569.18	$9,662.32

Table 14 (continued)

Local Funding	2015-2024	2025-2030	2031-2040	Total
City of Austin	$905.00	$726.00	$1,210.00	$2,841.00
City of Round Rock	$164.00	$98.40	$164.00	$426.40
Other local funding *	$787.60	$453.94	$722.79	$1,964.33
Bastrop County	$73.46	$44.08	$73.46	$191.00
Burnet County	$42.40	$25.50	$42.40	$110.30
Caldwell County	$61.30	$50.10	$89.10	$200.50
Hays County	$364.57	$338.44	$589.07	$1,292.08
Travis County	$589.14	$442.26	$963.09	$1,994.49
Williamson County	$1,050.00	$650.00	$1,050.00	$2,750.00
TOTAL	$4,037.47	$2,828.72	$4,903.91	$11,770.10

Revenue Summary	2015-2024	2025-2030	2031-2040	Total
Federal/State funding Total	$3,287.90	$1,793.84	$3,581.06	$8,662.79
Regional Funding Total	$ 3,135.21	$ 698.63	$ 1,176.06	$ 5,009.90
Local Transit Funding	$2,793.28	$2,299.86	$4,569.18	$9,662.33
Local Funding Total	$4,037.47	$2,828.72	$4,903.91	$11,770.10
	$13,253.86	$7,621.05	$14,230.21	$35,105.12
TOTAL	$13,254	$7,621	$14,230	$35,105

** Funding from other cities in the CAMPO region*

developed by the City of Austin and Travis County. Staff assumed that costs were in 2015 dollars and estimated costs for the year of expenditure using a 4 percent annual rate of inflation. TxDOT and other member jurisdictions use the same rate (note that highways do not follow this process, as the sponsoring jurisdiction is required to provide all costs for highways).

Estimated costs for the plan include:

- Added capacity projects (all transportation modes); and,
- Operations and maintenance.

The costs for the *2040 Plan* are in Figure 19.

System Preservation

System preservation is managing the existing transportation system to protect transportation investments. It includes all activities undertaken to maintain roads, transit, bicycle and pedestrian facilities, and other elements of the transportation system. An effective system preservation program encompasses a full range of maintenance strategies, as well as rehabilitation treatments and reconstruction. The goal is to maintain or improve system performance (ride quality, safety, service life, etc.) in a cost-effective and efficient manner.

The *2040 Plan* includes dedicated state and federal funding for system preservation projects in three categories: bridges, safety, and maintenance and rehabilitation. The *2040 Plan* assumes a portion of the local funding goes to system preservation projects. The *2040 Plan* does not individually list system preservation projects, but groups them instead. The region can implement grouped projects without listing them individually in the plan, as long as there is sufficient funding in the appropriate plan grouping. Chapter Five includes examples of grouped projects.

Pavement Maintenance, Rehabilitation, and Reconstruction

Agencies involved in the preservation of our regional road system recognize that effective maintenance requires looking at the needs of the system as a whole rather than incrementally reacting to major deficiencies.

- **Maintenance** consists of cost-effective treatments to an existing road system that preserve, maintain, or improve functional condition. Maintenance may be proactive, in the case of preventive or routine maintenance, or reactive in the case of corrective maintenance.
- **Rehabilitation** consists of structural enhancements that extend the life of pavement and improve its load carrying capacity. Rehabilitation

Figure 20: Road Conditions

techniques include restoration treatments and structural overlays. Agencies often apply rehabilitation techniques to improve a road to current design standards for the area in which the road is operating. Examples include upgrading road drainage systems (replacing rural open ditch drainage configurations with urban curb and gutter drainage) and adding shoulders to roads.

- **Reconstruction** is the replacement of the entire structure and usually requires the complete removal and replacement of the existing pavement.

Table 15: TxDOT Pavement Management Plan

	2013 Lane Miles	2014 % Good or Better Condition	2015 Percent Good or Better Condition	2016 Percent Good or Better Condition	2017 Percent Good or Better Condition	2018 Percent Good or Better Condition
Bastrop	805	88.23	89.42	86.69	83.03	81.65
Burnet	804	92.84	89.50	87.93	86.09	83.15
Caldwell	692	91.45	89.07	85.40	85.99	80.75
Hays	714	86.90	85.71	83.57	84.30	81.06
Travis	2,114	86.77	86.03	85.46	85.10	83.82
Williamson	1,668	85.80	86.82	85.21	84.10	81.28

Source: Four-Year Pavement Management Plan (FY2015-FY2018): Analysis Report, TxDOT, September 2014

Pavement preservation techniques extend the life of roads. TxDOT conducts rehabilitation and reconstruction activities on major roads simultaneously because it is more cost-effective than conducting these activities separately. TxDOT and some jurisdictions within the CAMPO region use Pavement Management Information Systems (PMIS) to provide critical information about the condition and maintenance needs of the roads they maintain. PMIS use allows for a strategic approach to maintenance, rehabilitation, and reconstruction based on preservation goals, needs, and available resources.

For example, the Texas Transportation Commission's goal is to have at least 90 percent of TxDOT's pavements in "good or better" condition. TxDOT scores all pavements annually and assigns pavement condition scores based on pavement distress and ride quality. A condition score of greater than 70 (as illustrated in Figure 20) constitutes "good or better."

TxDOT also models and predicts future pavement condition scores based on pavement deterioration rates, climatic regions, and road types. TxDOT's *2015-2018 Pavement Management Plan* uses existing and predicted pavement condition scores. TxDOT uses project-specific improvement plans and specified funding levels.

Table 15 summarizes the expected results from implementing TxDOT's *2015-2018 Pavement Management Plan* on the state system in the CAMPO region. It shows the percentage of lane miles in "good or better" condition in the CAMPO region for 2014 and the predicted percentage of lane miles in

"good or better" condition after planned preservation investments from 2015-2018.

Note that the full implementation of scheduled pavement preservation investments is not sufficient to maintain even current conditions. Limited resources present the challenge of balancing mobility needs with preservation needs.

Soil characteristics and climate influence pavement condition and deterioration rates. The Balcones Fault bisects the CAMPO region. There are different soil characteristics in the western and eastern parts of the region. The western part of the region is rocky hill country with thin soils. The eastern part of the region has deeper soils with some heavy clay layers.

Heavy clay with high soil plasticity shrinks and expands due to fluctuations in soil moisture. This process causes premature pavement cracking and buckling, soils shifting in the roadbed, and damage to under-road utilities. Roads in the western part of the region, built on rock and thin soils, typically last longer than do roads in the eastern part of the region. Map 32 illustrates soil plasticity in our region.

Climate projections indicate that the region may become drier. Rainfall, when it occurs, may be more intense. The region can expect soil moisture to decrease between 4 percent and 10 percent by 2040. Given these projections, road preservation needs in the eastern part of the region could increase (and affect road preservation budgets) due to the soil shrink/swell factor.

Bridge Maintenance, Rehabilitation, and Replacement

In partnership with state DOTs, FHWA maintains a National Bridge Inventory (NBI). The NBI includes almost 600,000 bridges located on public roads, including interstate highways, U.S. highways, and state, county, and city roads, as well as publicly accessible bridges on federal lands. The NBI does not include railroad and pedestrian bridges.

Each state is required to conduct periodic inspections of all bridges subject to the NBI and to report data to the FHWA. Inspection results identify bridges that are:

- Structurally deficient, which indicates a bridge with a structure that is in poor condition or a bridge with a low load rating that is in need of replacement; or,
- Functionally obsolete, which indicates a bridge that is too narrow or provides too little clearance to meet modern engineering standards.

Structurally deficient or functionally obsolete bridges are given priority for replacement or rehabilitation using state and federal funding allocated for that purpose. See Map 20 for locations of structurally deficient and functionally obsolete bridges in the CAMPO region.

Preservation of the Public Transportation System

Replacement of Buses, Vans, and Passenger Rail Vehicles

Transit agencies must periodically replace the buses, vans, and rail vehicles used to provide public transportation due to one or more factors:

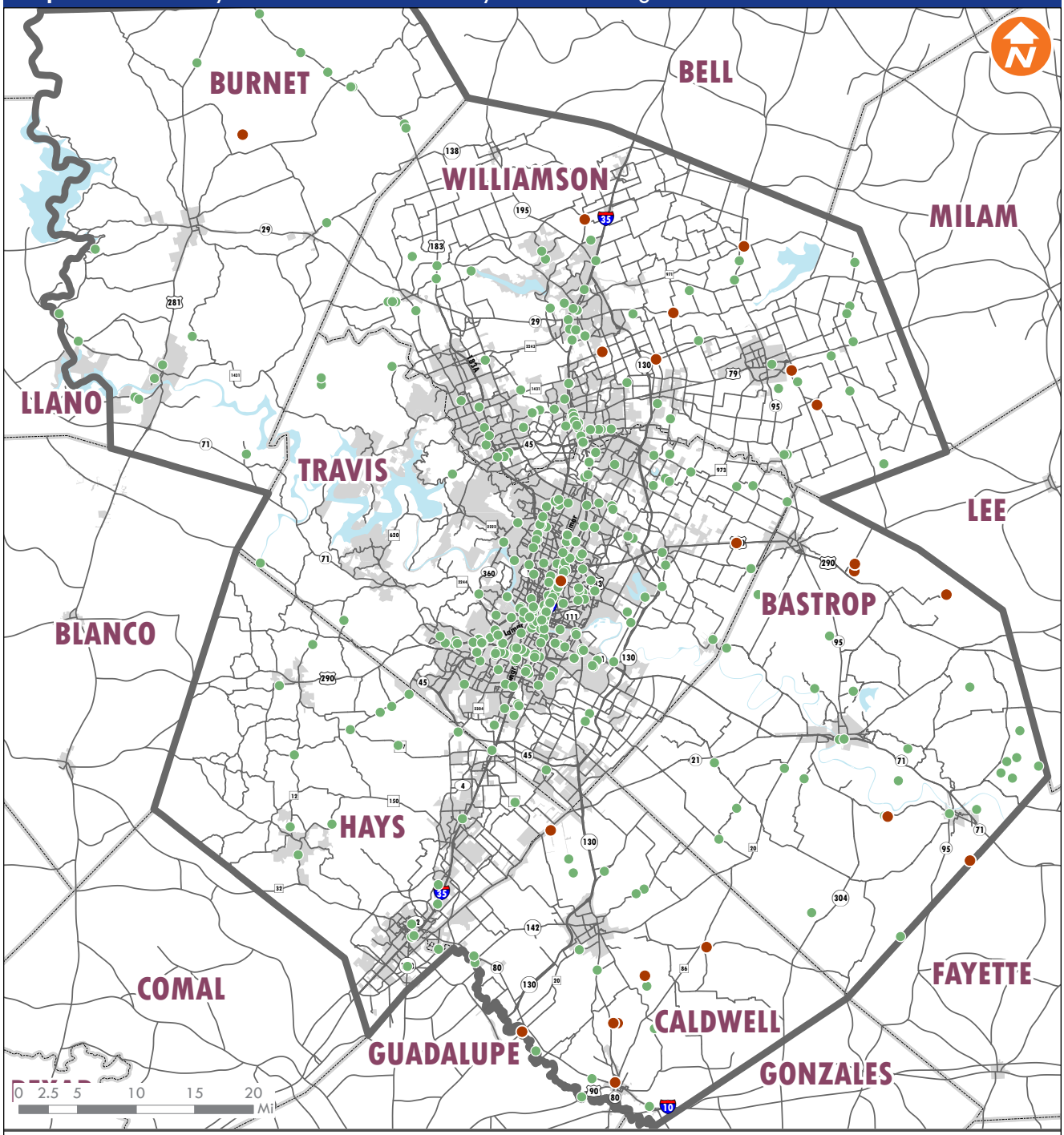
- Equipment has reached the end of its useful service life;
- Need to switch to an alternative fuel or respond to tighter emissions or fuel efficiency standards; or,
- Industry standards and regional desires have changed with respect to equipment design (e.g., low floor vehicles).

The Federal Transit Administration (FTA) has established minimum useful life standards for public transportation vehicles. Table 16 presents these standards.

Maintenance and Preservation of Other Transit Amenities and Facilities

Transit amenities and facilities include rail and rail support structures, intermodal facilities, rail stations, park-and-ride lots, bus stop amenities, and maintenance facilities. These services will have varying needs for maintenance,

Map 20: Functionally Obsolete and Structurally Deficient Bridges - 2014



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TxDOT
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Deficient Bridges.mxd

Bridge Category
- Fuctionally Obsolete
- Structurally Deficient
- City Limits

rehabilitation, and replacement over the life of the public transportation system.

Other System Preservation Activities

Other elements of the regional transportation system periodically need maintenance, replacement, or reconstruction. Bicycle and pedestrian facilities, roadside landscaping, and intelligent transportation systems technology, for example, require preservation to ensure that the performance of the transportation system does not decline.

Corridor Preservation

Right-of-way (ROW) preservation can be a major part of the cost of a transportation project and should be preserved as early as possible. TxDOT, local governments, and others need to work together to preserve sufficient ROW for the transportation projects called for by the *2040 Plan*.

Right-of-Way Preservation

Tables 17 and 18 provide a general guide for the amount of ROW needed to accommodate the roads called for by the *CAMPO 2040 Regional Transportation Plan*.

Safety and Security

Improving the safety and security of the traveling public is an important component of the *2040 Plan*. CAMPO emphasizes the importance of safety and security in the *2040 Plan's* goals and guiding principles. For the purposes of this document, safety refers primarily to vehicle crashes, while security refers to amenities that may enhance travelers' security, emergency response coordination, flooding on roads and low-water crossings, hurricane evacuation routes, and wildfire evacuation.

Safety Trends

CAMPO evaluates the safety of the transportation system based primarily on vehicle crash data. CAMPO supports the reduction of the number and severity of crashes by making safety a priority in the

Table 16: Transit Vehicle Life Cycles

	Minimum Life (Years)	Average Cost
Commuter/light rail vehicle	25	$6,200,000
Heavy-duty large bus (35 to 40 feet)	12	$475,000
Heavy-duty small bus (30 feet)	10	$450,000
Medium-duty medium bus (25 to 35 feet)	7	$135,000
Light-duty medium bus (25 to 35 feet)	5	$90,000
Other light-duty revenue vehicles	4	$57,000

Table 17: Highways and State System Roads[1]

Roadway Functional Classification/ Context/Cross Section	Standard ROW Width (in feet)
8 lane freeway w/ 2 managed lanes (Highway)	450’
8 lane freeway w/1 managed lane (Highway)	425’
6 lane freeway w/3 lane frontage roads (Highway)	400’
6 lane freeway w/ 2 managed lanes (Highway)	400’
4 lane freeway w/3 lane frontage roads (Highway)	400’
6 lane parkway (Highway)	300’
6 lane parkway w/2 managed lanes (Highway)	300’
4 lane parkway (Highway)	300’
8 lane divided-urban (MAD 8)	200’ (min.)
6 lane divided-urban (MAD 6)	200’
6 lane divided-rural, rolling terrain (MAD 6)	250’
6 lane divided-rural, flat terrain (MAD 6)	250’
4 lane divided-urban (MAD 4)	150’
4 lane divided-rural, rolling terrain (MAD 4)	220’
4 lane divided-rural, flat terrain (MAD 4)	220’
4 lane-rural, rolling terrain (MAU 4 / MNR 4)	150’
4 lane-rural, flat terrain (MAU 4 / MNR 4)	150’
2 lane, with left turn lane-rural, rolling terrain (MAD 2/MNR 2)	150’
2 lane, with left turn lane-rural, flat terrain (MAD 2 /MNR 2)	150’
2 lane-rural, rolling terrain (MAU 2 / MNR 2)	150’
2 lane – rural, flat terrain (MAU 2/ MNR 2)	150’

1 As promulgated by TxDOT Austin District.

project selection process and by collaborating on regional safety-conscious planning efforts. Safety-conscious planning minimizes exposure and risk in order to minimize the consequences of crashes. CAMPO also works with implementing agencies to address the multi-faceted causes of vehicle crashes by advancing the "Four Es" of transportation safety: engineering, enforcement, education, and emergency response.

Table 18: Other Regional Roads[1]

Roadway Functional Classification/ Context/Cross Section	Standard ROW Width (in feet)
6 lane (MAU 6/MAD 6)	150' (minimum)
4 lane divided-rural/suburban (MAD 4)	130' (minimum)
4 lane divided-urban (MAD 4)	100' (minimum)
4 lane undivided (MAU 4/MNR 4)	85' (minimum)
2 lane divided (MAD 2)	85' (minimum)
2 lane undivided (MAU2/MNR 2)	75' (minimum)

1 Based on a survey of typical ROW widths by facility type throughout the region. Consult project sponsor and local jurisdiction for ROW requirements on specific projects/locations.

The CAMPO region experienced a 27 percent decline in the traffic fatality rate between 2003 and 2010. This rate decline mirrored the state and national trends in declining fatality rates. Improvements across the Four Es caused the decline. However, the CAMPO region's fatality rate has increased 17 percent since 2010, tracking the region's high growth rate. This highlights the need for continued emphasis on implementing Four Es strategies.

Figure 21 shows the 2010-2013 fatality rates per 100 million vehicle miles traveled (VMT) for Bastrop, Caldwell, Hays, Travis, and Williamson counties. Figure 22 compares CAMPO to the state and the nation. Despite these significant reductions in fatal crashes, the CAMPO planning area still has a higher fatality rate than many peer regions, as shown in Figure 23.

While fatality crashes have declined, the total number of crashes in the CAMPO region has

Figure 21: Fatality Rates by County (per 100 million VMT)

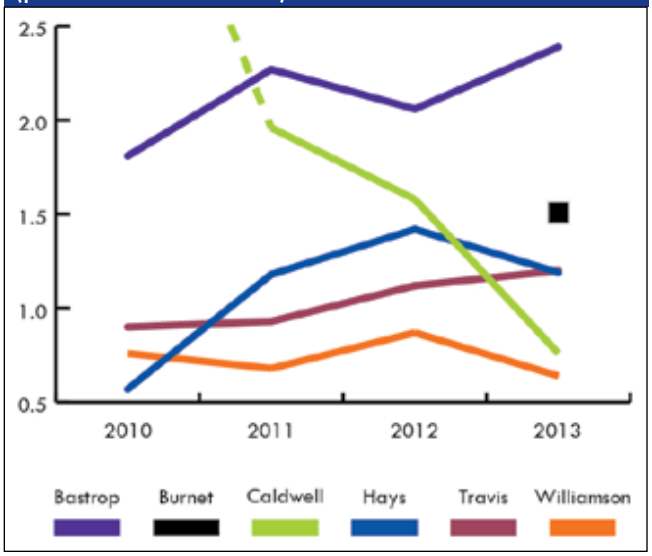
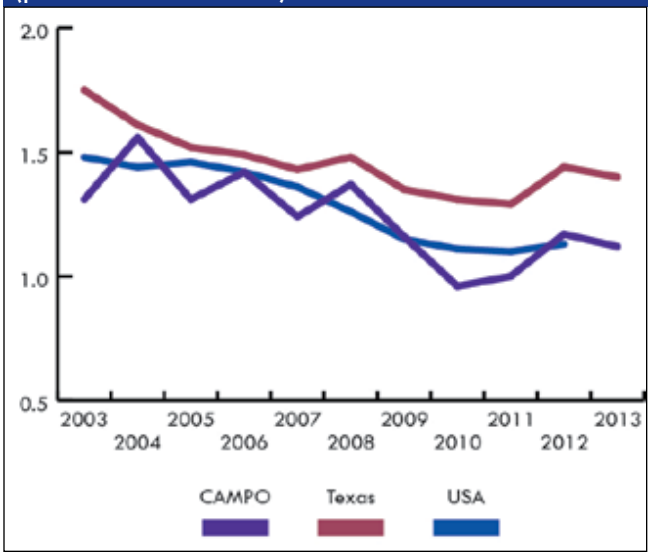
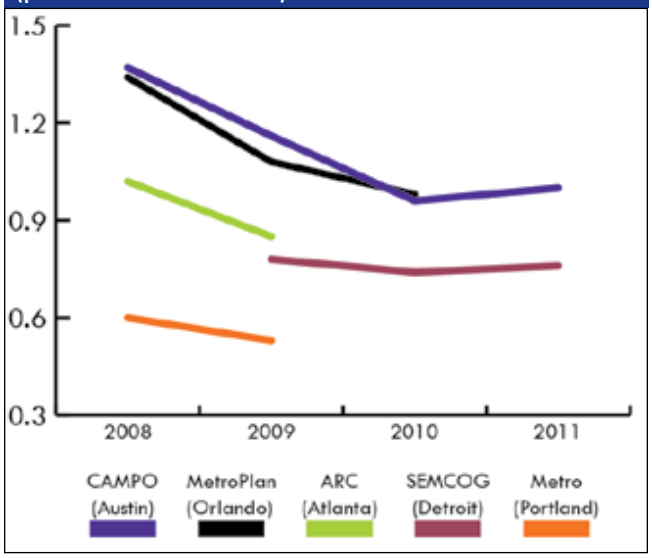


Figure 22: CAMPO Region Fatality Rate (per 100 million VMT)



Note: Burnet County joined CAMPO in 2013 and is not included in this data set before 2013.

Figure 23: Peer Regions' Fatality Rates (per 100 million VMT)



increased almost 15 percent between 2010 and 2013. The average comprehensive cost of these crashes has increased by a similar factor. In 2011, the cost of crashes in the CAMPO region was $2.03 billion (in 2011 dollars) according to cost estimates of crashes by the National Safety Council. This figure includes property damage, lost earnings, lost household production, medical costs, emergency services, travel delay, vocational rehabilitation, workplace costs, administrative costs, legal costs, pain, and lost quality of life.

Within the Austin Census Urbanized Area, the estimated economic cost of crashes almost matches those caused by congestion in the entire CAMPO region. The Texas A&M Transportation Institute estimated the cost of regional congestion to be $810 million in 2011 (see Figure 24).

Strategic Highway Safety Plan

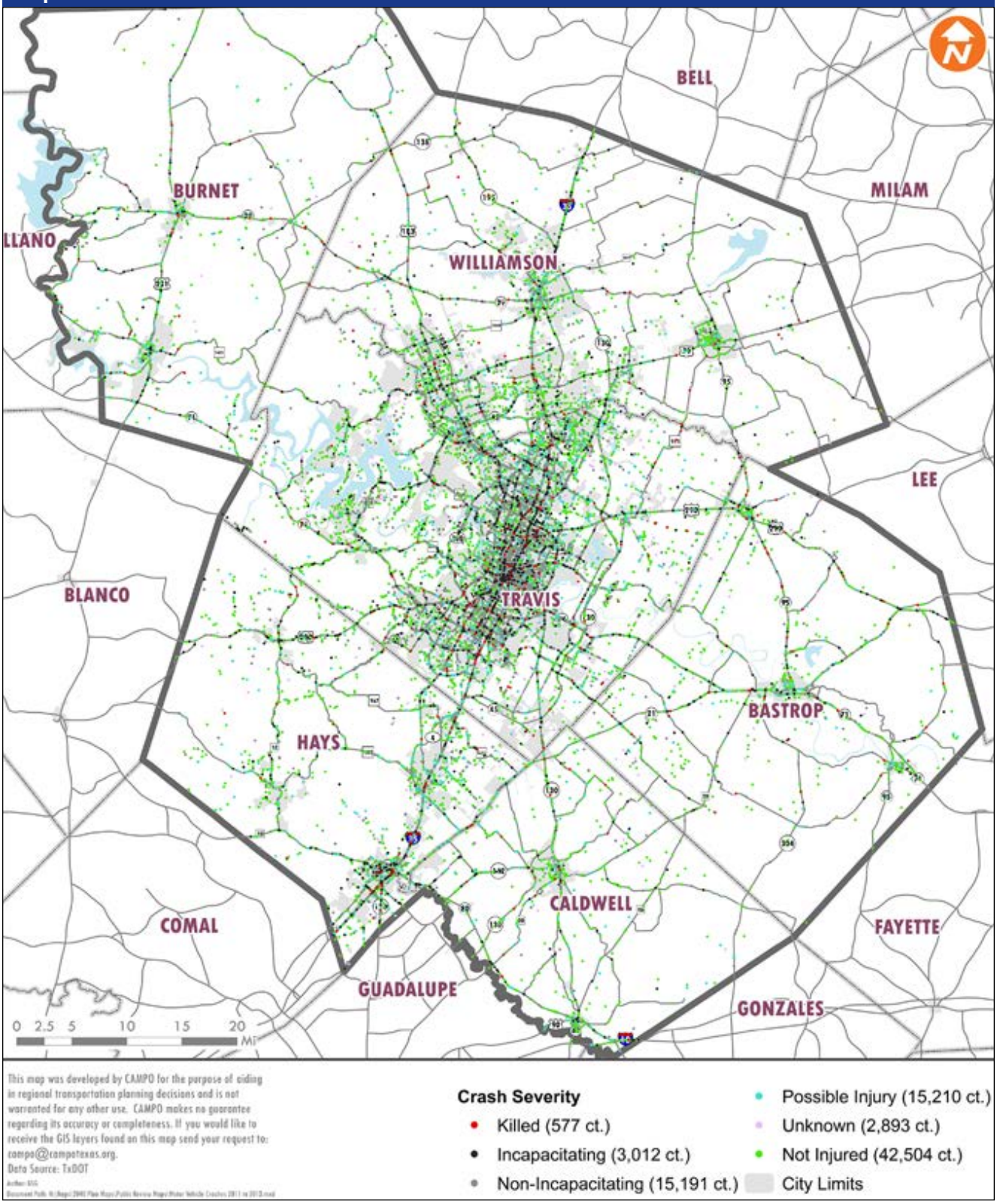
Addressing crashes on capital area roads requires a targeted and multi-faceted approach. The *Texas Strategic Highway Safety Plan* (SHSP) provides a framework of emphasis areas to identify key contributing factors of crashes, and to select countermeasures for targeted reductions.

Typically, more than one factor contributes to a crash. Driving under the influence is a factor in the greatest number of fatal crashes. Intersections are the primary location for fatal and injurious crashes. Three of the top five factors involved in fatal and injurious crashes in 2010 were related to behavior and system users (see Figure 25). Reducing fatal and injurious crashes in the CAMPO planning area requires a multi-faceted strategy that includes not just infrastructure improvements, but also increased education, enforcement, and emergency response measures.

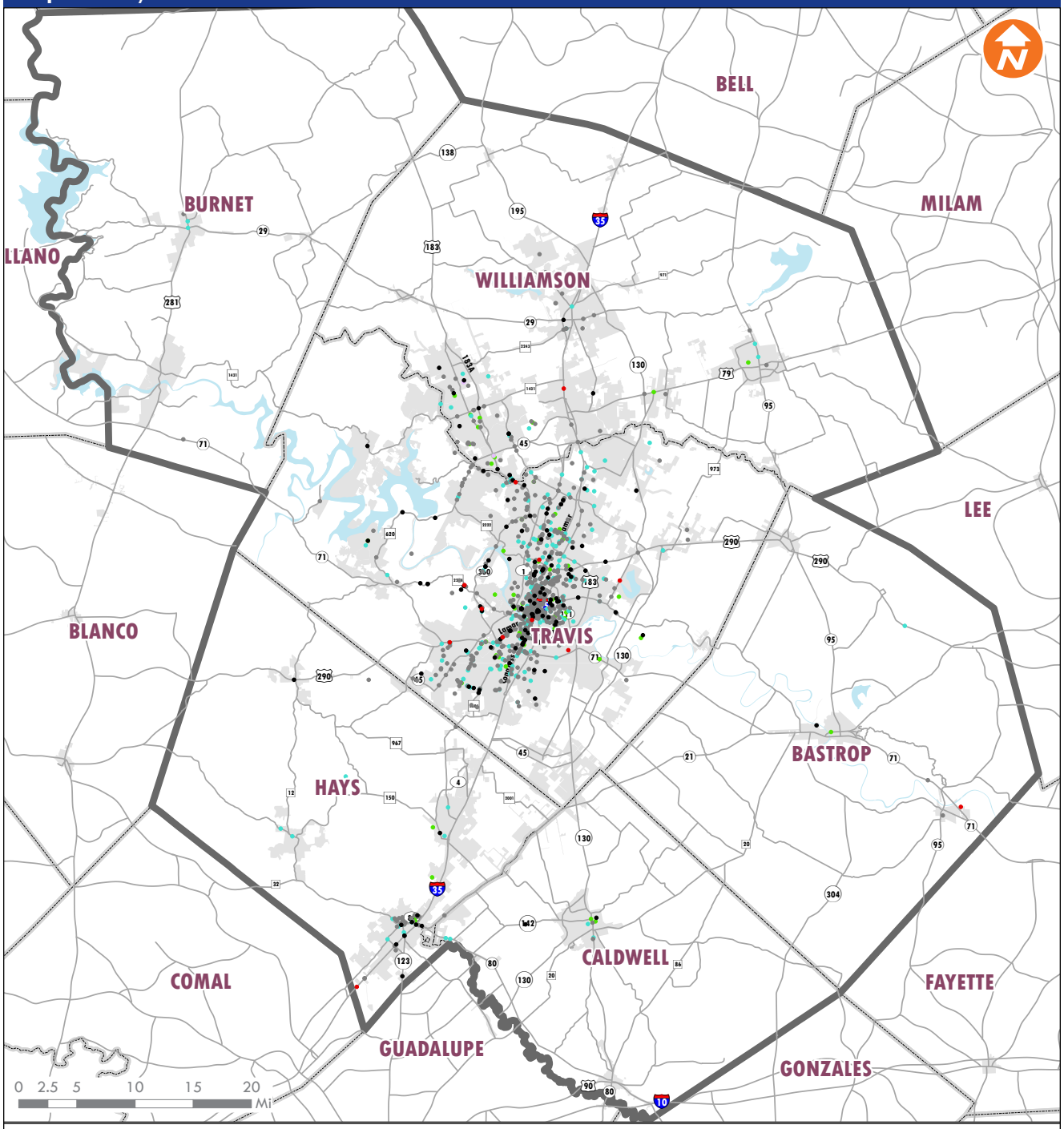
The Texas Highway Safety Improvement Program (HSIP) funds improvements, listed as countermeasures that address the serious crash types identified in the most current Texas SHSP. The list comprises the safety construction programs, the Hazard Elimination Safety (HES) and the High Risk Rural Roads (HRRR) programs. The HES program focuses on construction and operational improvements for locations both on and off the state highway system

Figure 24: Cost of Crashes (Austin Census Urbanized Area only)

Map 21: Motor Vehicle Crashes 2011 to 2013



Map 22: Bicycle Crashes 2011 to 2013

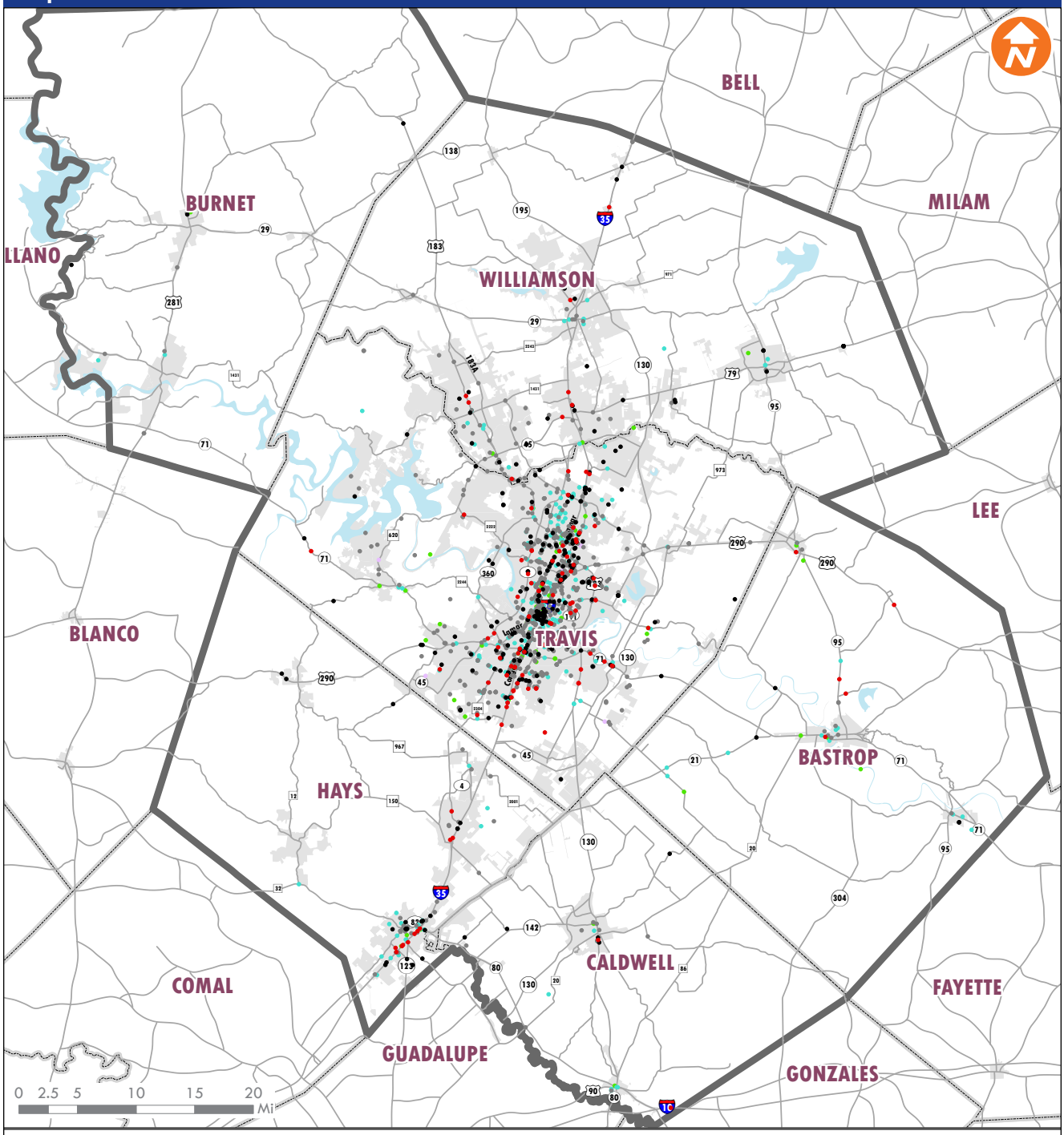


This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TxDOT
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Bicycle Crashes 2011 to 2013.mxd

Crash Severity

- Fatal (13 ct.)
- Incapacitating Injury (150 ct.)
- Non-Incapacitating Injury (739 ct.)
- Possible Injury (268 ct.)
- Unknown (3 ct.)
- Not Injured (92 ct.)
- City Limits

Map 23: Pedestrian Crashes 2011 to 2013

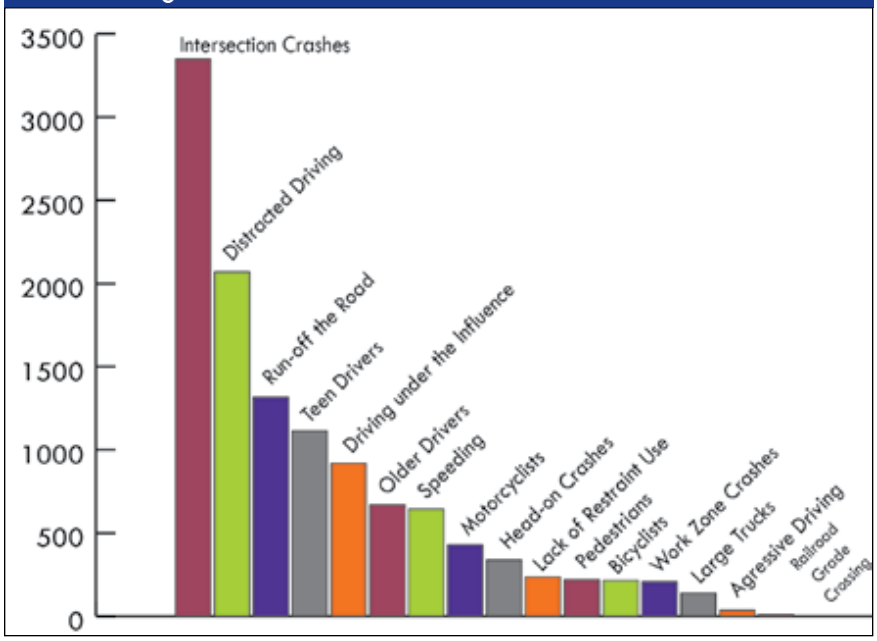


This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TxDOT
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Pedestrian Crashes 2011 to 2013.mxd

Crash Severity

- Fatal (112 ct.)
- Incapacitating Injury (284 ct.)
- Non-Incapacitating Injury (813 ct.)
- Possible Injury (345 ct.)
- Unknown (9 ct.)
- Not Injured (78 ct.)
- City Limits

Figure 25: Contributing Factors to Fatal and Injurious Crashes: CAMPO Region 2010



(excluding interstate highways). The HRRR program focuses on construction and operational improvements on high-risk rural roads. The TxDOT Traffic Operations Division administers both the HES and HRRR programs.

National Highway Traffic Safety Administration (NHTSA) Section 402 funds provide for educational, enforcement, and other programs in support of reducing fatalities. The Traffic Safety Section in the TxDOT-Traffic Operations Division awards grants annually to state, local, and non-profit agencies.

Integrating Safety Into Regional Planning

CAMPO provides regional partners with an analysis tool to guide their investments and strategic crash reduction programs.

CAMPO Safety Assessment Tool (C-SAT)

The CAMPO Safety Assessment Tool (C-SAT) is a software program for the assessment of road safety along the CAMPO region's state-maintained roads. The program enables the inspection of recent crash trends and incorporates an evaluation of safety performance for individual roads. The C-SAT (developed by researchers at TTI) provides detailed crash query reports and state-of-the-practice predictive statistics.

Regional Safety Initiatives

CAMPO co-hosted the first Transportation Safety Summit in the fall of 2012 with the City of Austin, Capital Metro, TxDOT Austin District, and other partners. It was an unprecedented gathering of policy makers, transportation professionals, and other members of the public concerned about transportation safety issues. The meeting identified three key focus areas for future collaboration and planning impaired driving, pedestrians, and insufficient infrastructure.

Building on the momentum of the Transportation Safety Summit, TxDOT's Austin District launched the Crossroads Coalition, an action-oriented organization with members across the Four Es. The Coalition provides a forum for best practices amongst TxDOT Traffic Safety Program grantees in enforcement and education, while also creating new interdisciplinary action groups. Coalition members have launched emphasis area teams for impaired driving and for distracted driving. The teams develop strategies that go beyond the limited funding and capacity of existing grant programs.

TxDOT places the highest priority on the safety of the traveling public on the state highway system. The Austin District has ongoing efforts to reduce fatal and injurious crashes through traffic engineering, planning,

design, construction, and maintenance. The district proactively monitors the safety performance of state highways in the CAMPO region to identify and address safety problems, both at high-crash locations and on a systemic basis.

The Austin-area Incident Management for Highways (AIMHigh) Team is a collaboration of emergency response and related support providers. In 2010, the team developed the Traffic Incident Management (TIM) Strategic Plan. TIM is a systematic, planned, and coordinated approach to detect, respond to, and remove traffic incidents, and to restore traffic capacity as safely and quickly as possible. TIM participants include law enforcement, fire and rescue, emergency medical services, transportation, towing and recovery, and other personnel. TIM is one of the most effective tools available for reducing delay and enhancing safety, particularly by preventing secondary crashes.

Employing multiple approaches can reduce fatal and injurious crashes on capital area roads. CAMPO is helping to facilitate improved coordination in regional safety efforts. CAMPO also targets funding toward safety improvements in infrastructure, and in operational and educational programs.

Security

Security-Enhancing Amenities

Some amenities can improve the security of the traveling public. Amenities are often important elements of Crime Prevention through Environmental Design (CPTED) initiatives.

Lighting at bus stops, at intersections, under bridges, and along sidewalks and bicycle paths should provide illumination sufficient to allow clear sight and deter potential criminal activities.

Landscaping along roads, trails, and bicycle paths should not interfere with clear lines of sight for vehicle occupants, pedestrians, and bicycle riders. Highly visible and easily understood signage and other way-finding aids improve travelers' navigation, reduce confusion and anxiety, and enhance security.

The City of Austin's Downtown Austin Wayfinding Project will make it easier for residents, commuters, and tourists to navigate downtown. The project offers a range of navigation

A dynamic highway messaging sign gives commuters a safety message.

and communication tools. These include signage, brochures, kiosks, and smart-phone applications. The City of Austin is phasing in the project over several summers.

Emergency Response Coordination

Emergency response coordination within and between counties is an important element of regional transportation security, including a coordinated response to natural disasters and terroristic threats. The Combined Transportation, Emergency, and Communications Center (CTECC) coordinates emergency communications and traffic management in Travis County. CTECC is a partnership between the City of Austin, Travis County, TxDOT, and Capital Metro. The partners coordinate responsibilities for dispatch of law enforcement, fire and emergency medical services (EMS), transportation management on the public transportation system and the state's road system, and combined city and county emergency management.

Emergency response in Williamson County is coordinated through the Williamson County Office of Emergency Management and in Hays County by the Hays County Office of Emergency Management. Emergency response in Bastrop County is coordinated through the Bastrop County Office of Emergency Management. In Caldwell County, emergency response is coordinated through the Caldwell County Office of Homeland Security and Emergency Management. Emergency response in Burnet County is coordinated through the Burnet County Office of Emergency Management.

The Capital Area Council of Governments (CAPCOG) Homeland Security Division developed a regional response plan for the ten-county CAPCOG region, which includes the CAMPO area. CAPCOG also maintains a regional notification system that sends emergency related information to those who sign up for the service.

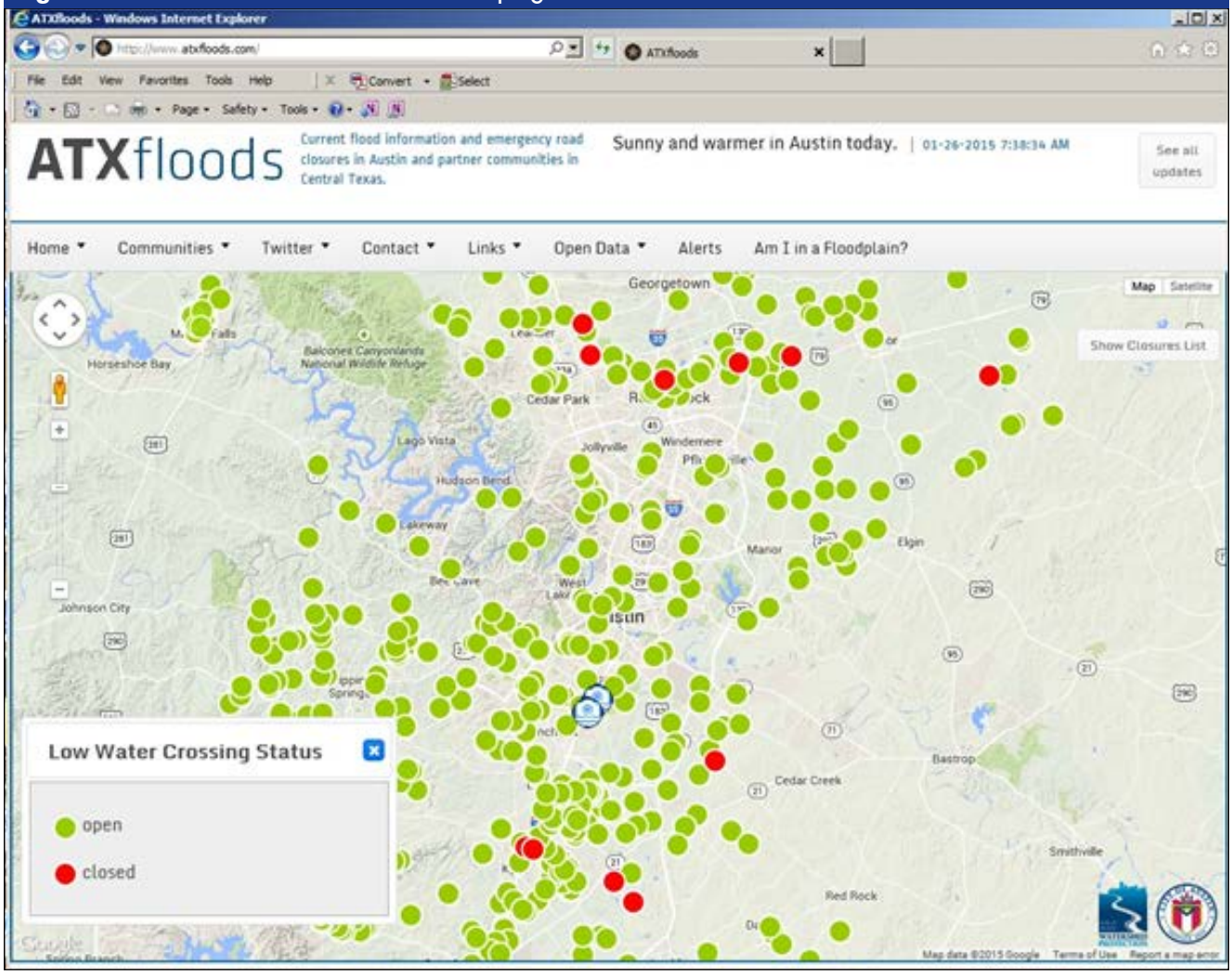
Road safety is important to CAMPO.

The Texas Division of Emergency Management manages and staffs the State Operations Center (SOC) located at the Texas Department of Public Safety (DPS) Headquarters in Austin. The SOC serves as the state warning point, and as the primary state direction and control facility. It operates around the clock to monitor threats and to provide notification. The SOC provides information on emergency incidents to local, state, and federal officials. It also coordinates state emergency assistance to local governments experiencing emergencies for which local response resources are insufficient.

Flooding On Roads And Low-Water Crossings

Flash floods typically occur in the CAMPO area when it rains at least two inches in fewer than 12 hours. The impacts of flash floods on the transportation system range from temporary disruption to road washouts, particularly in rural areas. Flooding impacts vary in severity based on several factors, including rainfall intensity, ground saturation, and presence of debris, which can block drainage facilities. Engineers design roads to withstand different flood severity levels based on road type, function, and construction year. Engineers design higher-level roads such as interstates and other highways to withstand more severe weather than lower level arterials and local roads. Some rural or formerly rural (urbanizing) communities with

Figure 26: Screenshot of ATXfloods Webpage



roads designed to lower levels find flooding events particularly disruptive.

Low-water crossings, or places where the road crosses a creek without a bridge, are a significant flooding concern for vehicles operating in the CAMPO area, where there are over 600 low-water crossings. Flash floods often overcome low-water crossings, making them dangerous or impossible to cross in a vehicle. According to the National Weather Service and the National Oceanic and Atmospheric Administration (NOAA), nearly half of all flash flood fatalities are vehicle related. As little as six inches of water on the road can cause drivers to lose control of their vehicle and two feet of water will sweep most cars away. Drivers cannot visually determine with accuracy the water's depth or the underlying road conditions at flooded low-water crossings. For this reason, it is extremely dangerous to attempt crossing a flooded low-water crossing. It is illegal to drive around barricades at a flooded low-water crossing. The region has seen numerous fatalities and swift water rescues due to people driving through flooded, and often barricaded low-water crossings, despite an ongoing public outreach

campaign to influence people to "turn around, don't drown."

The public can access information about low-water crossings and road closures due to flooding through the website ATXfloods.com. ATXfloods is a service provided by the City of Austin. Austin's Flood Early Warning System (FEWS) team maintains it. The FEWS team monitors weather and road conditions at all times. The City of Austin partners with several communities to report current flood information and associated low-water crossing or road closures. The communities that participate are Caldwell County, Hays County, Travis County, Williamson County, Sunset Valley, Cedar Park, Leander, Round Rock, Rollingwood, and Marble Falls. Travis and Williamson Counties only report on crossings that are outside the boundaries of any city. The coordinated effort monitors more than 600 low-water crossings. Figure 26 shows a screenshot of the ATXfloods map noting open and closed low-water crossings.

Hurricane Evacuation Routes

TxDOT defines hurricane evacuation routes from coastal to inland Texas. These evacuation routes quickly move thousands of people inland when a major hurricane is going to make landfall in populated coastal areas. Some of the TxDOT hurricane evacuation routes travel to or through the CAMPO area, as shown on Map 24. The US 290E hurricane evacuation route from Houston to Austin includes a planned contraflow route. When conditions warrant, TxDOT will activate the contraflow plan. This plan reverses the US 290E eastbound lanes to carry two lanes of westbound traffic.

Wildfire Evacuation

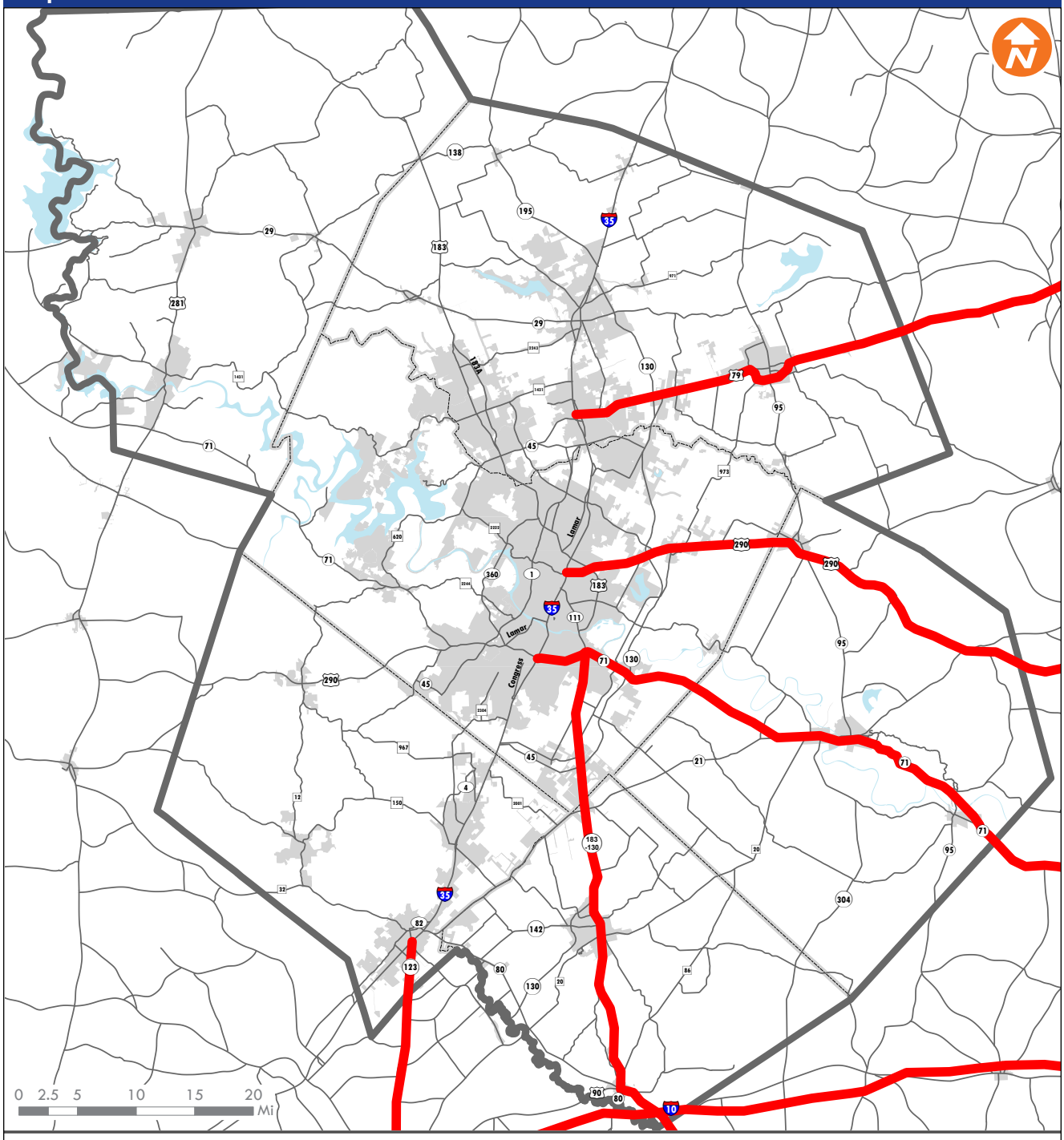
The CAMPO region is at risk for wildfires, as evidenced by recent experience. On Labor Day weekend, 2011, the CAMPO region experienced nine wildfires. They burned almost 47,000 acres, destroying more than 1,800 homes and other structures. The Bastrop Complex fire was the largest and most destructive of the Labor Day fires, burning more than 32,000 acres, destroying more than 1,600 homes, and killing two people. It was the most destructive fire in Texas' history.

Climate projections indicate that conditions conducive to wildfires will increase through 2040. Given the increased propensity for wildfires and the potentially severe consequences, it is important for the transportation system to provide adequate wildfire evacuation routes. According to local fire officials, the active burn period for most wildfires is from 10 a.m. to sundown. The peak burn period is often from 3 p.m. to 5 p.m., corresponding with the evening peak period for traffic congestion.

Depending on the timing and location of wildfires, fire and emergency management officials may have to direct evacuations onto congested roads. This risks creating gridlock and hindering the evacuation process. Rural and suburban roads that are the only road serving a population are also problematic for wildfire evacuation and may lead to instances where people cannot evacuate because the only road for evacuation is not useable.

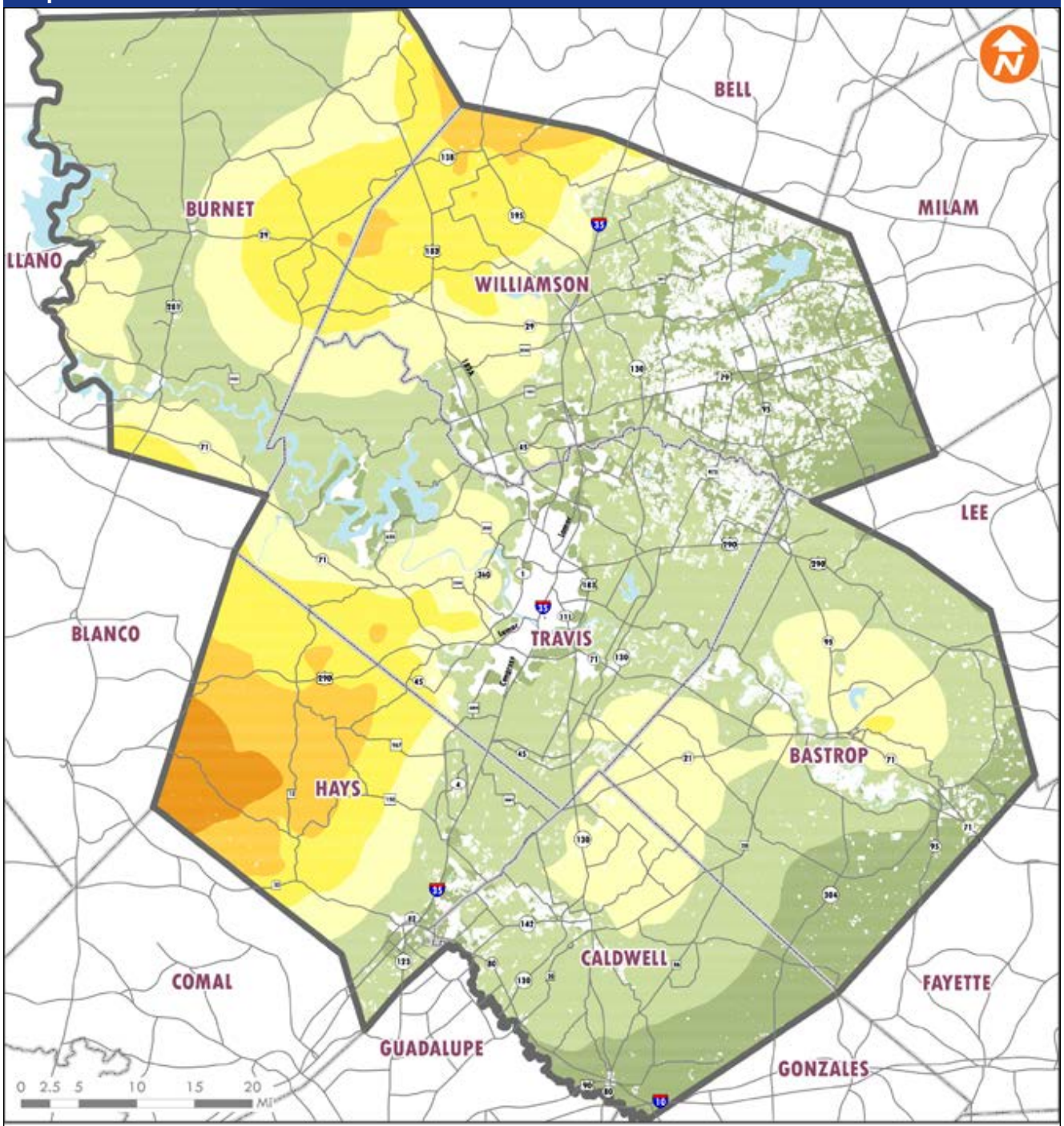
The Texas Wildfire Risk Assessment Portal (TxWRAP) is a website developed by the Texas A&M Forest Service. The site provides wildfire risk information for the state and helps build awareness of Texas wildfire issues. The Wildfire Threat map (Map 25) and the Wildfire Ignition Density map (Map 26) are from the TxWRAP website. The Wildfire Threat map indicates the level of wildfire threat based on physical characteristics such as topography and vegetation types. The Wildfire Ignition Density map indicates the likelihood of a wildfire starting based on historical ignition patterns. The Wildfire Threat map notes that the western part of the region has high wildfire threat areas and the eastern part of the region has moderate wildfire threat areas. The Wildfire Ignition Density map shows that wildfires have historically occurred in all counties in the CAMPO area. Taken together, these maps point to the likelihood of wildfires occurring in the region and the need to provide adequate evacuation

Map 24: Hurricane Evacuation Routes

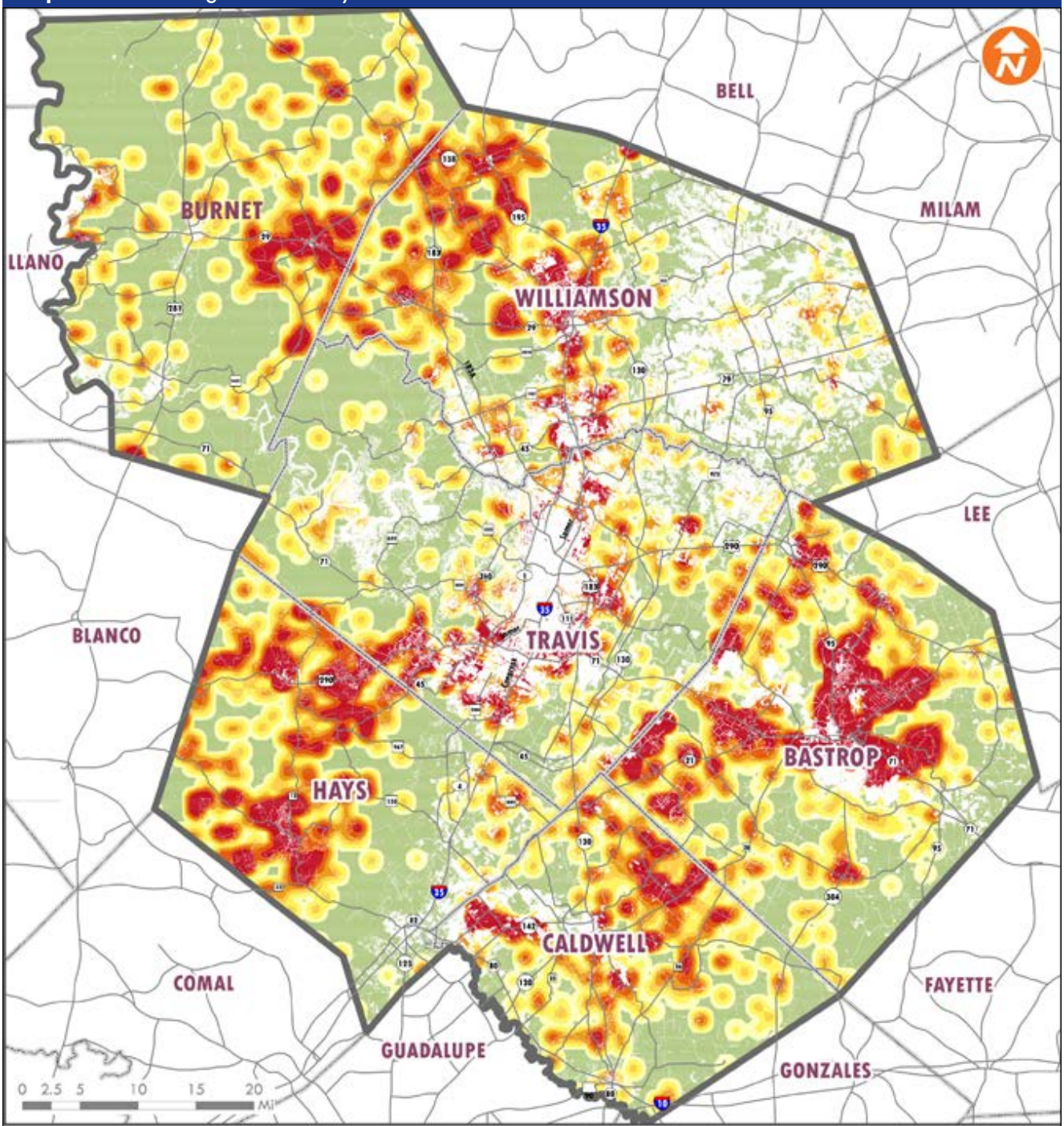


This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TxDOT
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Hurricane Evacuation Routes.mxd

Map 25: Wildfire Threat



Map 26: Wildfire Ignition Density



routes. CAMPO will work with state and local partners to evaluate and define potential wildfire evacuation routes.

Freight Movement

The CAMPO region is not a major generator of freight traffic, although large amounts of freight move into and through the region daily. Freight travels in the CAMPO region via roads, railroads, and air. Road-based freight has the largest effect on the region's transportation system. Map 27 shows freight facilities in the CAMPO region. Map 27 also shows freight flows (road and rail).

Road-Based Freight

The National Primary Freight Network[1] (NPFN) and the Texas Highway Priority Freight Network (THPFN) are the primary networks for the CAMPO region's road-based freight.

National Primary Freight Network (NPFN)

The NPFN is a nationwide freight network that provides guidance for strategic allocation of resources. These resources support system performance improvements, particularly those that enhance efficient movement of freight on the nation's highways. The CAMPO region has two highways in the NPFN – IH 35 and IH 10. The NPFN includes these highways, in part, because of their large volumes of freight traffic, but also in response to input from system stakeholders (e.g., local and state governments, TxDOT, and freight industry representatives).

1 See 167(c) of Title 23 of the United States Code, established in Section 1115 of the "Moving Ahead for Progress in the 21st Century Act" (MAP-21).

Truck traffic is heavy on IH 35.

Texas Highway Priority Freight Network (THPFN)

TxDOT is developing the THPFN as part of a multimodal freight backbone for the state. The THPFN is similar to the NPFN; it will prioritize freight investments by identifying areas, such as bottlenecks, that need improvement. TxDOT is using two primary sources to create the THPFN: 20 years of TRANSEARCH freight data and a wide variety of stakeholder input.

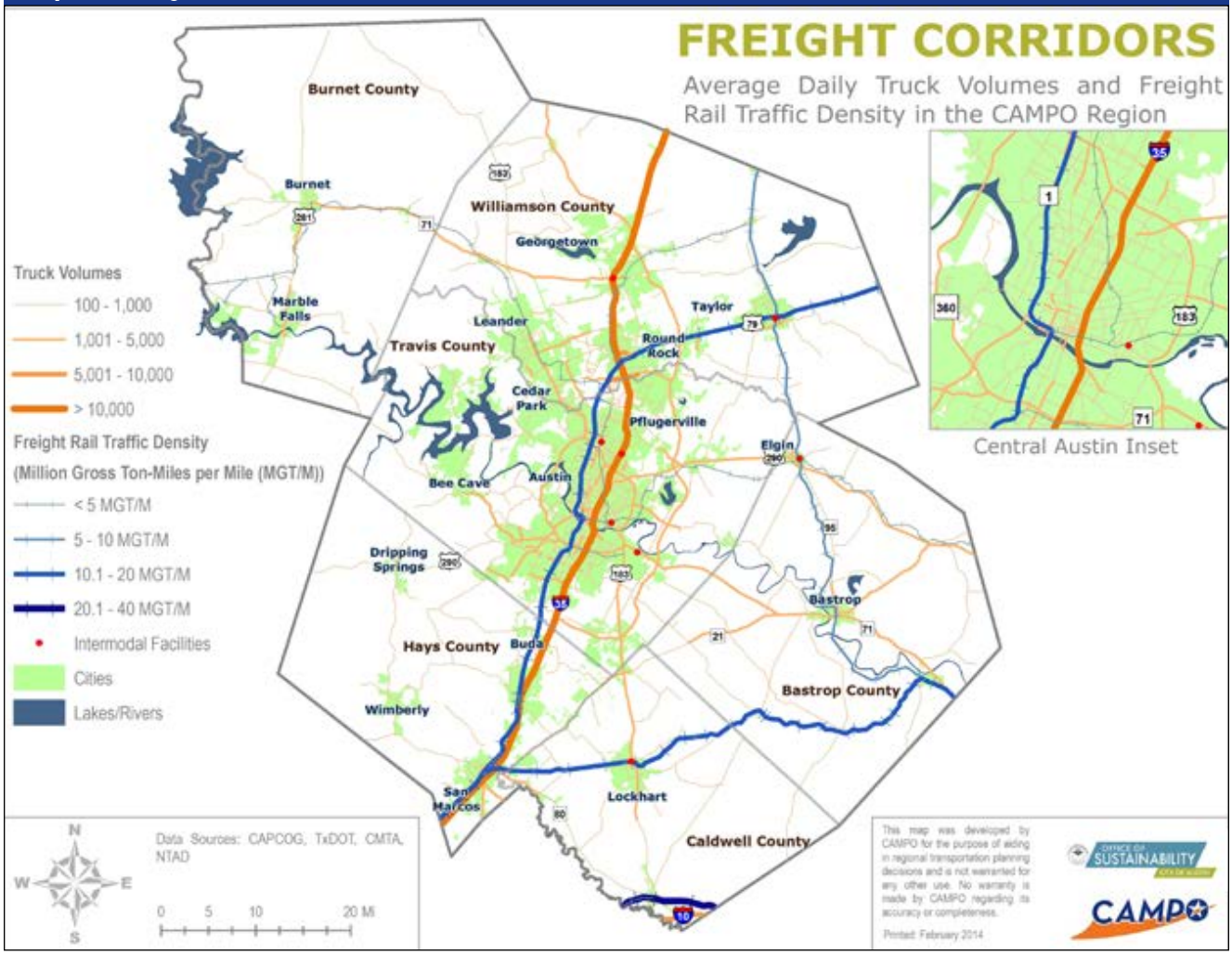
The THPFN includes more road types than does the NPFN. The THPFN selects from highways listed in the Texas Trunk System, choosing highways that serve a role in regional, state, interstate, national, and international freight movement needs. The Texas Trunk System is a network of rural divided highways that complements and includes elements of the Interstate Highway System. The THPFN also evaluates truck tonnage flows and volumes on the highway network.

The THPFN is still preliminary. TxDOT anticipates adopting it in early 2015.

Freight-Related Trucking Laws and Rules

In parts of the CAMPO region, local laws prohibit freight trucks from driving in the left lane (except for passing another vehicle, or entering/exiting the interstate). The requirement is in effect on IH 35, from 1.3 miles

Map 27: Freight Corridors



south of the Bell/Williamson County line to 0.5 miles north of the Hays/Comal County line. The lane restrictions apply 24-hours-a-day, seven days-a-week.

A 2004 law (30 Texas Administrative Code 114, Subchapter J, Division 2) allows cities and counties to place and enforce limits on idling of heavy-duty motor vehicles. Lawmakers passed the law in an attempt to lower NO_x and other emissions from fuel combustion, and updated the law in 2011 and 2012.

Nine cities and five counties in the CAMPO region "opted-in" to idling restrictions. The counties are Bastrop, Caldwell, Hays, Travis, and Williamson. The cities are Austin, Bastrop, Elgin, Georgetown, Hutto, Lockhart, Luling, Round Rock, and San Marcos. The idling rule applies to all engines on heavy-duty motor vehicles except for those included in §114.517 of this law.

Freight-Related Improvements to the Road System

Most road improvements benefit freight movement to some extent. However, some improvement projects are freight-specific.

CAMPO completed its Austin Area Freight Study in 2007. The study recommended projects that could improve freight movement

along the region's roads. Some of these projects are now complete, while some will be constructed during the lifetime of the *2040 Plan*.

The following are examples of freight improvement projects the 2007 Austin Area Freight Study identified, and that project sponsors started (or completed) since the *2035 Plan's* adoption:

- IH 35/SH 71 Direct Connectors;
- Loop 1 North (FM 734 - Duval Road);
- Loop 1 North (US 183 North - Enfield Road);
- Loop 1 South (RM 2244 - Cesar Chavez Boulevard);
- The "Y" at Oak Hill; and,
- FM 734 (McNeil Drive to Loop 1).

In 2014, CAMPO awarded $37.8 million in federal Surface Transportation Program - Metropolitan Mobility funding to TxDOT to make operational improvements to IH 35. These system improvements will benefit both motorists and freight movement. Planned improvement to IH 35 will also benefit freight movement.

Rail-Based Freight

TxDOT developed the Texas Priority Rail Freight Network (TPRFN) in partnership with local and state governments, and with stakeholders such as private rail providers and freight suppliers.

Table 19: Total Freight Moved Through ABIA by Type, in Tons

	2014	2013	2012	2011	2010
Mail	2,368	1,745	1,619	2,005	2,738
Cargo	66,891	73,293	70,582	69,130	67,346
Belly Freight	8,461	4,238	5,608	5,550	6,427
Total	77,720	79,273	77,809	76,685	76,511

Union Pacific Railroad (UPRR) owns and operates all the rail lines in the TPRFN. All counties in the CAMPO region, with the exception of Burnet County, contain a TPRFN rail line.

Freight Rail Improvements

The UPRR line runs through heavily urbanized areas, including the City of Austin. Relocating this rail line to a more rural eastern area would reduce the number of dangerous urban crossings. This improvement would allow the trains to run at a higher speed, leading to routes that are more efficient. Stakeholders are studying possible relocation options.

Air-Based Freight

The Austin-Bergstrom International Airport (ABIA) is the main source of enplaned and deplaned airfreight in the CAMPO region. ABIA typically sees three freight categories: belly freight, cargo, and mail.

Belly freight is the designation for freight that passenger aircrafts carry. Some passenger airlines re-purpose unused cargo space, or set aside cargo space, for freight transport. This freight can range from U.S. Postal Service mail to large pallets of goods. British Airways and Southwest Airlines are the two largest carriers of belly freight into and out of ABIA. Major cargo carriers serving ABIA include FedEx, UPS, Atlas Air, Air Cargo Carrier, and Baron Aviation.

Table 19 details ABIA's total freight tonnage since 2010.

Environmental Factors

Environmental factors are an important decision-making consideration in transportation planning. The *CAMPO 2040 Regional Transportation Plan* includes consideration of environmental and historic resource preservation, air quality, energy conservation, water availability, and climate change and extreme weather vulnerability.

Environmental and Historic Resource Protection

Transportation projects have the potential to affect the environment's natural features, wildlife habitat, historic and archaeological resources, neighborhood character, water quality, and other resources that can affect quality of life and environmental

Table 20: Environmental Factors

Description	Potential Strategies	Potential Locations
Water Quality (Source: GISST)		
	■ Avoid or minimize effects to rivers, creeks, and other waterways to protect water quality. ■ Review areas where wetland/stream restoration, enhancement or creation will occur. Possible activities may include Water Pollution Abatement Plans (WPAP). ■ Provide temporary sediment control structures and storm water pollution prevention plans throughout the construction process. ■ Provide post-construction controls such as vegetated filter strips and grass swales; detention, extended detention, sand filtration, and wet ponds; infiltration methods. ■ Adjust the alignments of transportation facilities to avoid flood hazards. ■ Minimize impacts to surface waters at all stream crossings through bridge and culvert. ■ Use of permeable surfaces to reduce impacts on ground water recharge. ■ Establish or re-establish roadside landscaping or tree canopy feasible in conformance with relevant safety clear zone criteria. Utilize native landscape species to minimize maintenance needs. Minimize the use of pesticides and fertilizers in roadside maintenance. ■ Reduce roadside trash and litter through appropriate routine maintenance, public education, and adopt-a-road programs. ■ Use best available technology and design for permanent and temporary water quality controls for all road projects to the extent possible.	■ Water quality monitoring sites ■ Dams and lakes ■ Water and wastewater facilities ■ Rivers, creeks, and other waterways throughout the region
Ecological (Source: GISST)		
■ Managed lands ■ Percent agricultural land ■ Percent wildlife habitat ■ Federal and State threatened and endangered species	■ Avoid or minimize adverse impacts through project alignment and design. ■ Avoid or minimize adverse effects through the preservation of land for parks, trails, wildlife habitats, and open space. ■ Establish and use a regional approach to land preservation if direct preservation of a specific resource is not reasonably feasible. ■ Establish conservation easements.	■ Hike and bicycle trails ■ Preserves ■ State, regional, county, metropolitan and city parks ■ Karst zones
Historical (Source: Texas Historical Commission)		
■ National Register Historic Sites ■ Historic Markers ■ Cemeteries	■ Avoid historic sites when possible. ■ Minimize the effects on sites through project alignment and design. ■ Preserve at least a portion of large historic sites if avoidance is not possible. ■ Relocate and preserve buildings or cemeteries if other options are not available.	■ Historical sites occur throughout the six counties in the CAMPO region
Environmental Justice (Source: CAMPO)		
■ Areas identified as Environmental Justice Census tracts	■ Avoid or minimize adverse effects through project alignment and design. ■ Implement other transportation projects or programs that correct or minimize the adverse impacts. ■ Provide discounts or other types of financial relief to mitigate adverse effects on the low income Environmental Justice population.	■ Environmental Justice areas are identified in each of the six counties in the CAMPO region. Specific Environmental Justice areas are identified on the map titled "Environmental Justice Areas "

Table 20 (continued)

Description	Potential Strategies	Potential Locations
Edwards Aquifer (Source: CAMPO)		
▪ Areas that lie in the Edwards Aquifer Recharge or Contributing Zones	▪ Avoid or minimize impacts to the aquifer through project alignment and design. ▪ Utilize the Edwards Aquifer Rules for projects in the aquifer. ▪ Implement mitigation measures through design, the use of native landscaping, minimizing pesticides and fertilizers, and the use of permeable surfaces to reduce impacts on ground water recharge.	▪ Edwards Aquifer Recharge or Contributing Zones
Natural, criteria is similar to Ecological but does not include GISST (Source: CAMPO)		
▪ Publicly owned park or natural area, privately held conservation area, or an area designated as "critical habitat" for an endangered species	▪ Avoid or minimize adverse impacts through project alignment and design. ▪ Avoid or minimize adverse effects through the preservation of land for parks, trails, wildlife habitats, and open space. ▪ Establish and use a regional approach to land preservation if direct preservation of a specific resource is not reasonably feasible. ▪ Establish conservation easements.	▪ Hike and bicycle trails ▪ Preserves ▪ State, regional, county, metropolitan, and city parks ▪ Karst zones

sustainability. Federal regulations require long-range plans to consider potential environmental mitigation activities and to identify suitable areas to carry out these activities. Table 20 lists potential mitigation activities and locations where they might occur.

CAMPO must develop transportation plans in consultation with land management; and wildlife regulatory agencies at the federal, state, and tribal level. The consultation is required to include, as appropriate, a comparison of transportation plans with conservation plans or maps, and with inventories of natural or historic resources.

Evaluation Tools

The U.S. Environmental Protection Agency (EPA) developed a tool called the Geographical Information System Screening Tool (GISST). It supports assessments of potential impacts of transportation improvements by combining various environmental features into one mapped dataset with a weighted scoring structure. CAMPO used a subset of the GISST data to categorize the region by three levels of sensitivity: high, medium, and low (see Map 28). CAMPO then combined this data with data from the Texas Historical Commission on the location of recognized state and national historic resources. CAMPO uses this combined data set to identify areas that may be of special concern when locating transportation projects and in project selection.

In addition to relying on GISST, CAMPO maps aquifer zones (see Map 29), floodplain boundaries (see Map 30), and parks, and conservation areas (see Map 31).

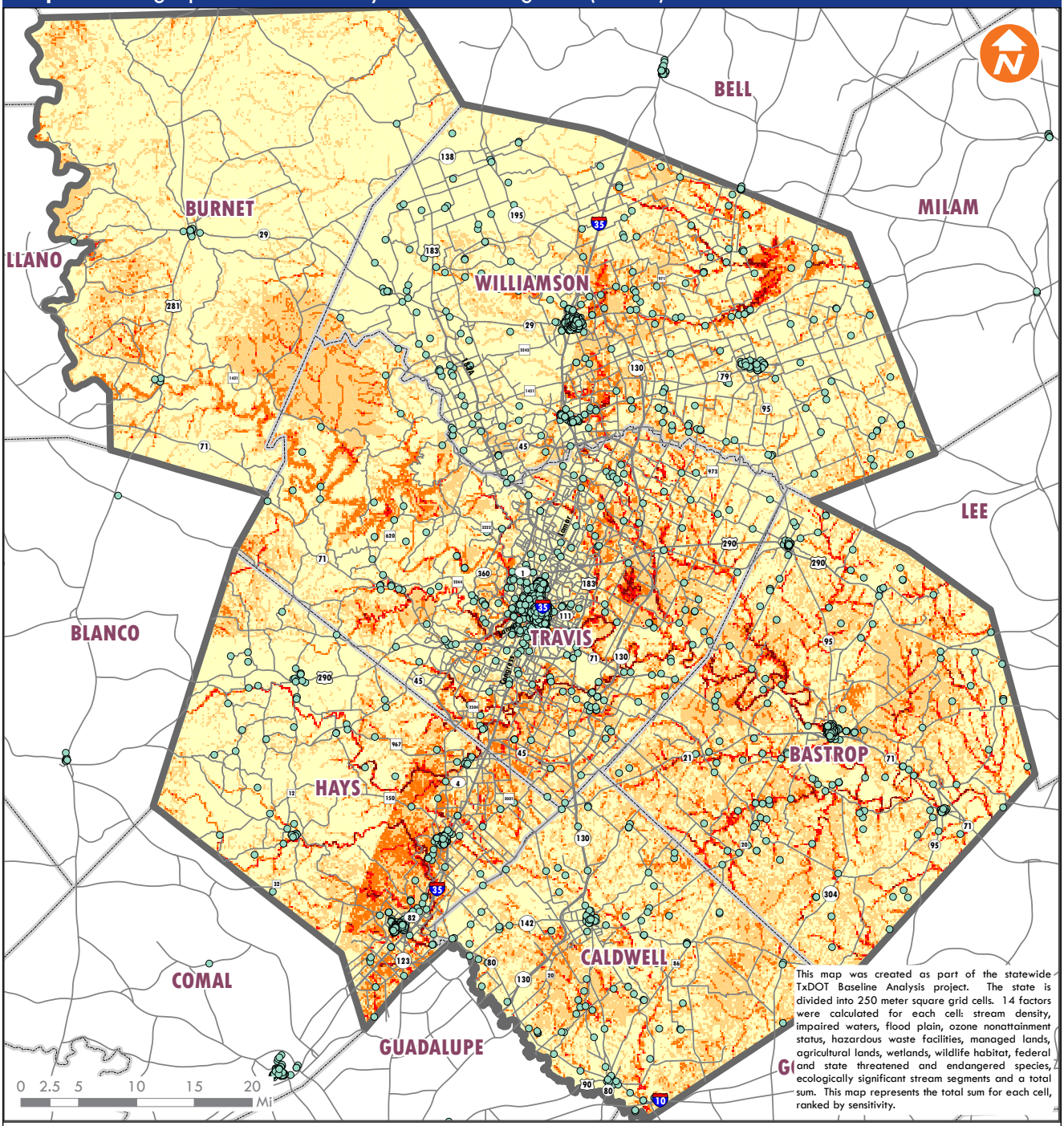
Air Quality

Ground-level ozone is the primary air pollutant of concern in the CAMPO region. It is a serious public health issue. High levels of ozone are particularly problematic for vulnerable populations such as children, seniors, and people who suffer from respiratory illness. High ozone levels can even affect healthy adults working or exercising outdoors.

Chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight create ground-level ozone. Emissions from motor vehicle exhaust, gasoline vapors, industrial facilities, and chemical solvents are some of the major sources of NO_x and VOC.

Breathing ozone can trigger a variety of health problems including chest pain, coughing,

Map 28: Geographic Information System Screening Tool (GISST)



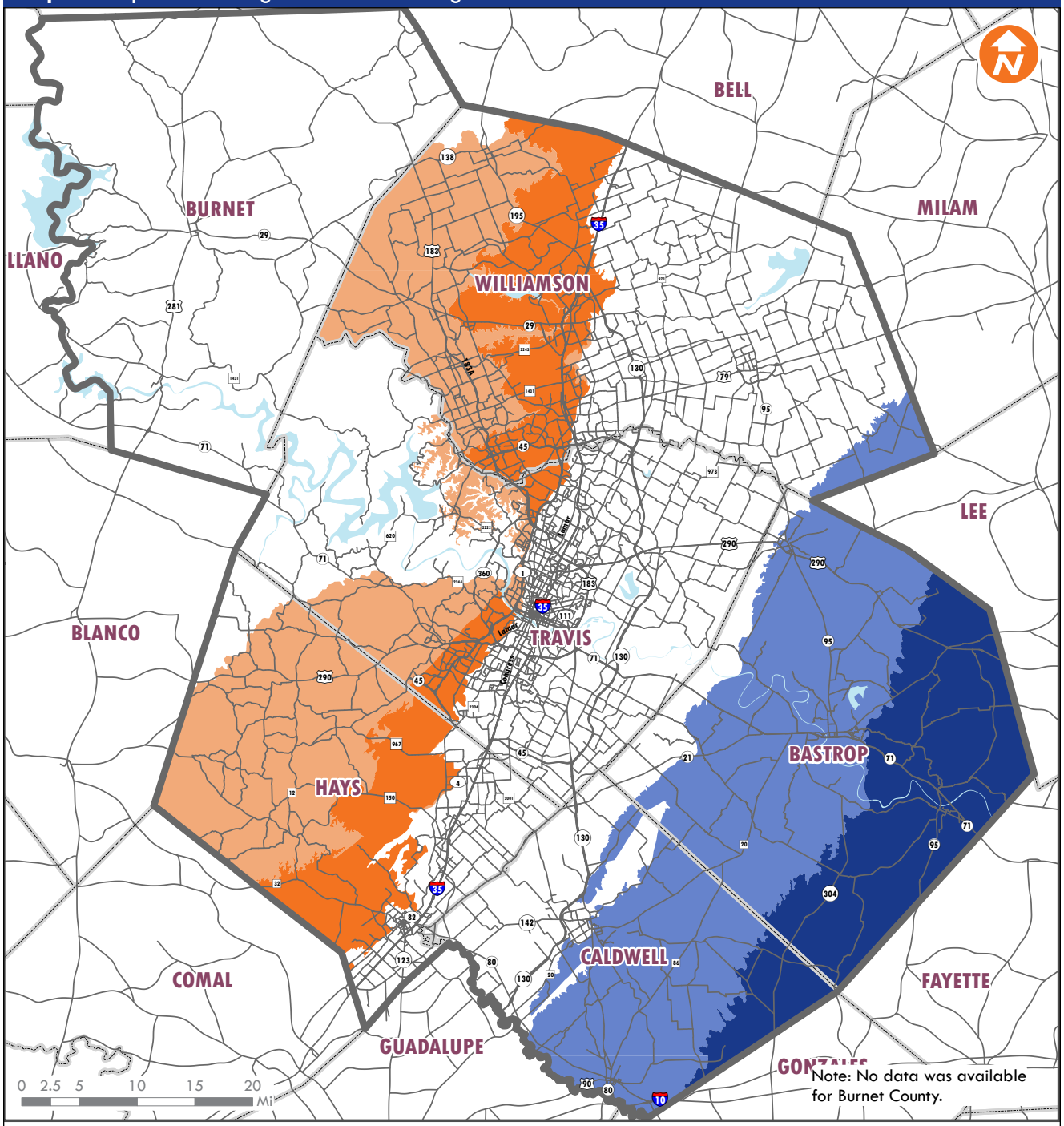
This map was created as part of the statewide TxDOT Baseline Analysis project. The state is divided into 250 meter square grid cells. 14 factors were calculated for each cell: stream density, impaired waters, flood plain, ozone nonattainment status, hazardous waste facilities, managed lands, agricultural lands, wetlands, wildlife habitat, federal and state threatened and endangered species, ecologically significant stream segments and a total sum. This map represents the total sum for each cell, ranked by sensitivity.

This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TxDOT, Texas Historical Commission
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Environmental Sensitivity Analysis with Historic Sites.mxd

GISST: Sum Score
- 13 - 23: low concern
- 24 - 28
- 29 - 33: medium concern
- 34 - 37
- 38 - 50: high concern

Historic Places

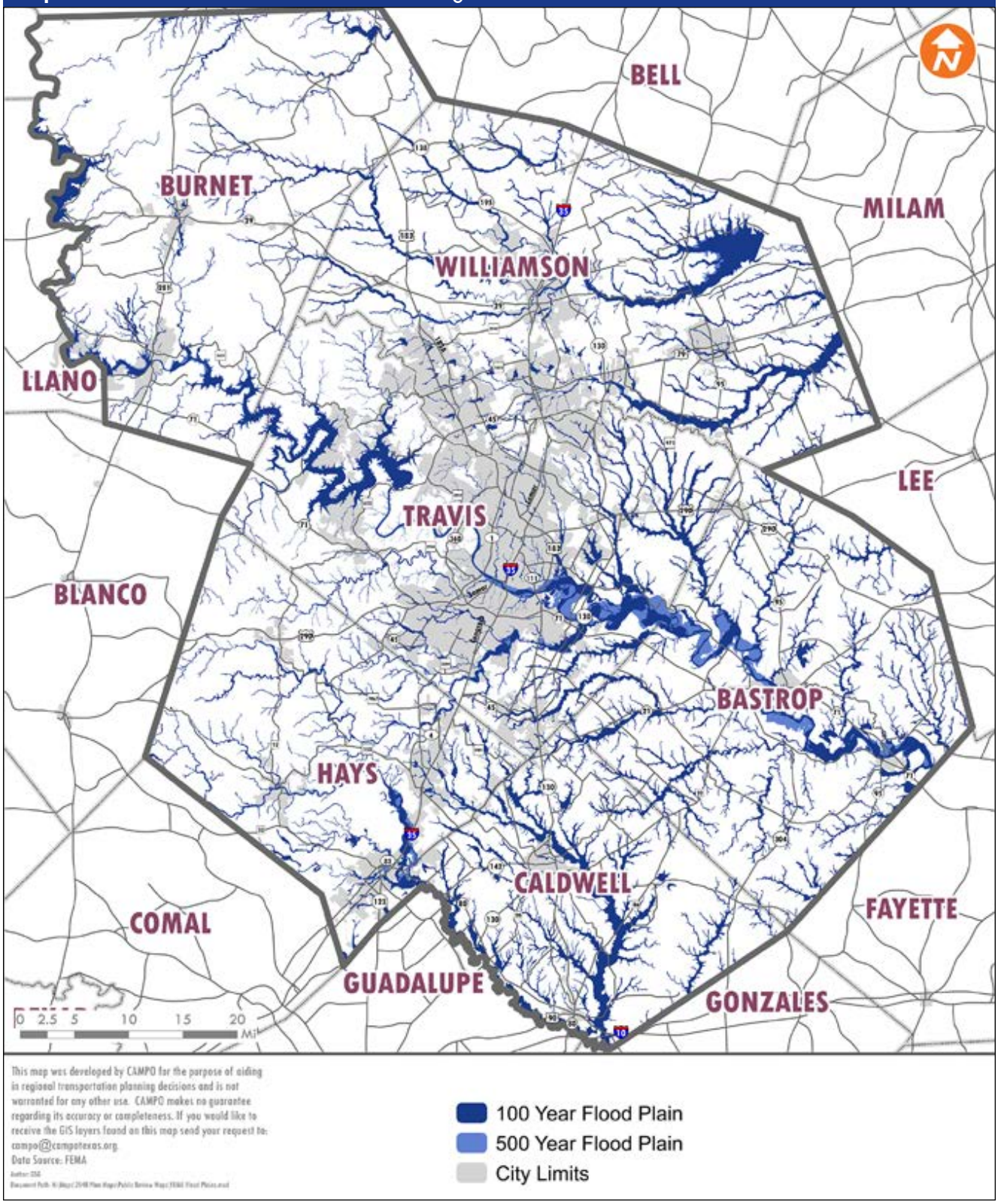
Map 29: Aquifer Recharge and Contributing Zones



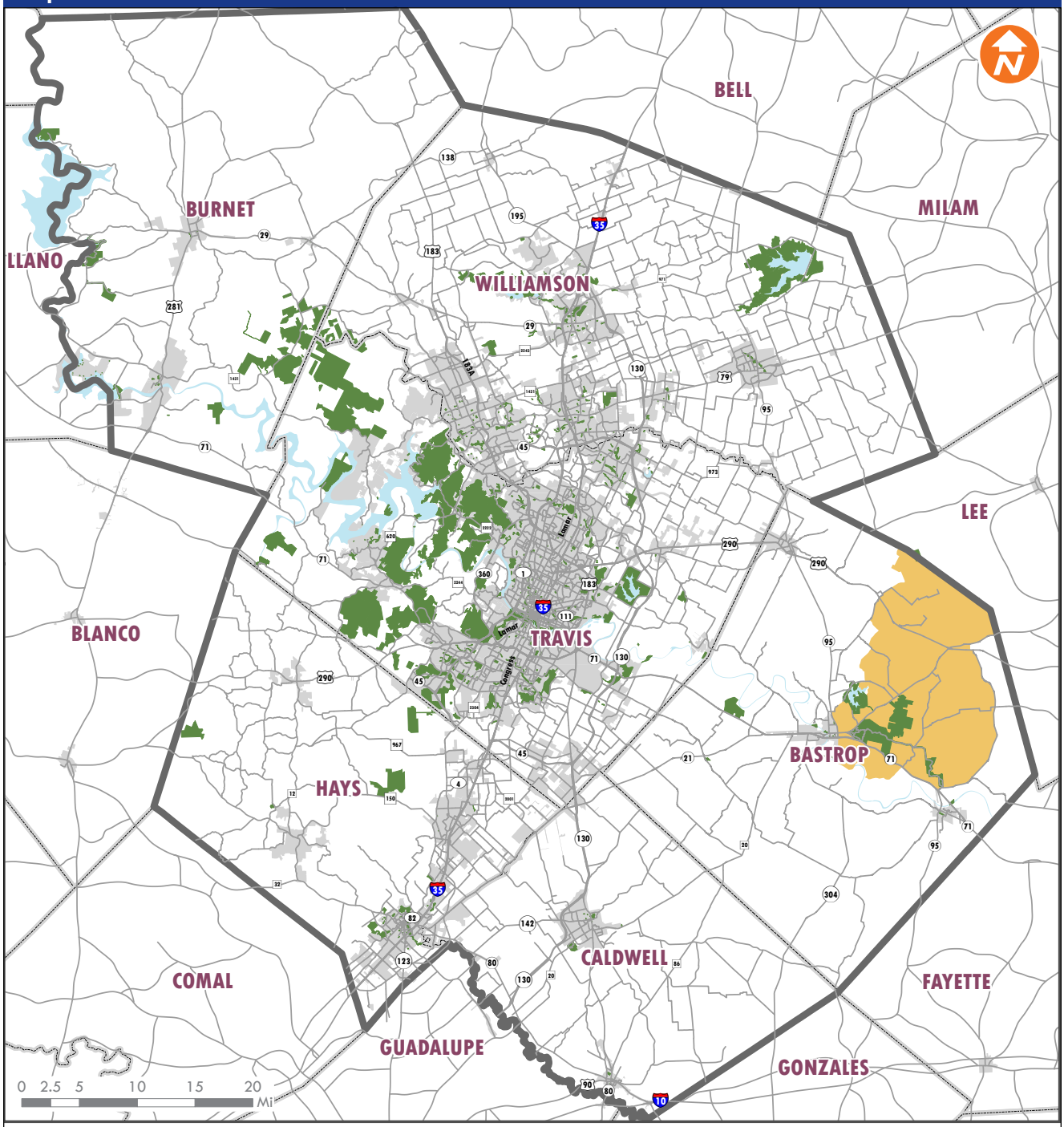
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: TWDB, City of Austin
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Aquifer Recharge and Contributing Zones.mxd

- Edwards Aquifer Contributing Zone
- Edwards Aquifer Recharge Zone
- Carrizo-Wilcox Contributing Zone
- Carrizo-Wilcox Recharge Zone

Map 30: FEMA Flood Plains in the CAMPO Region



Map 31: Parks and Conservation Areas



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Sources: TPWD, Bastrop County, Travis County
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Parks and Conservation Areas.mxd

- Lost Pines Habitat Conservation Plan Area
- Parks and Conservation Areas
- City Limits

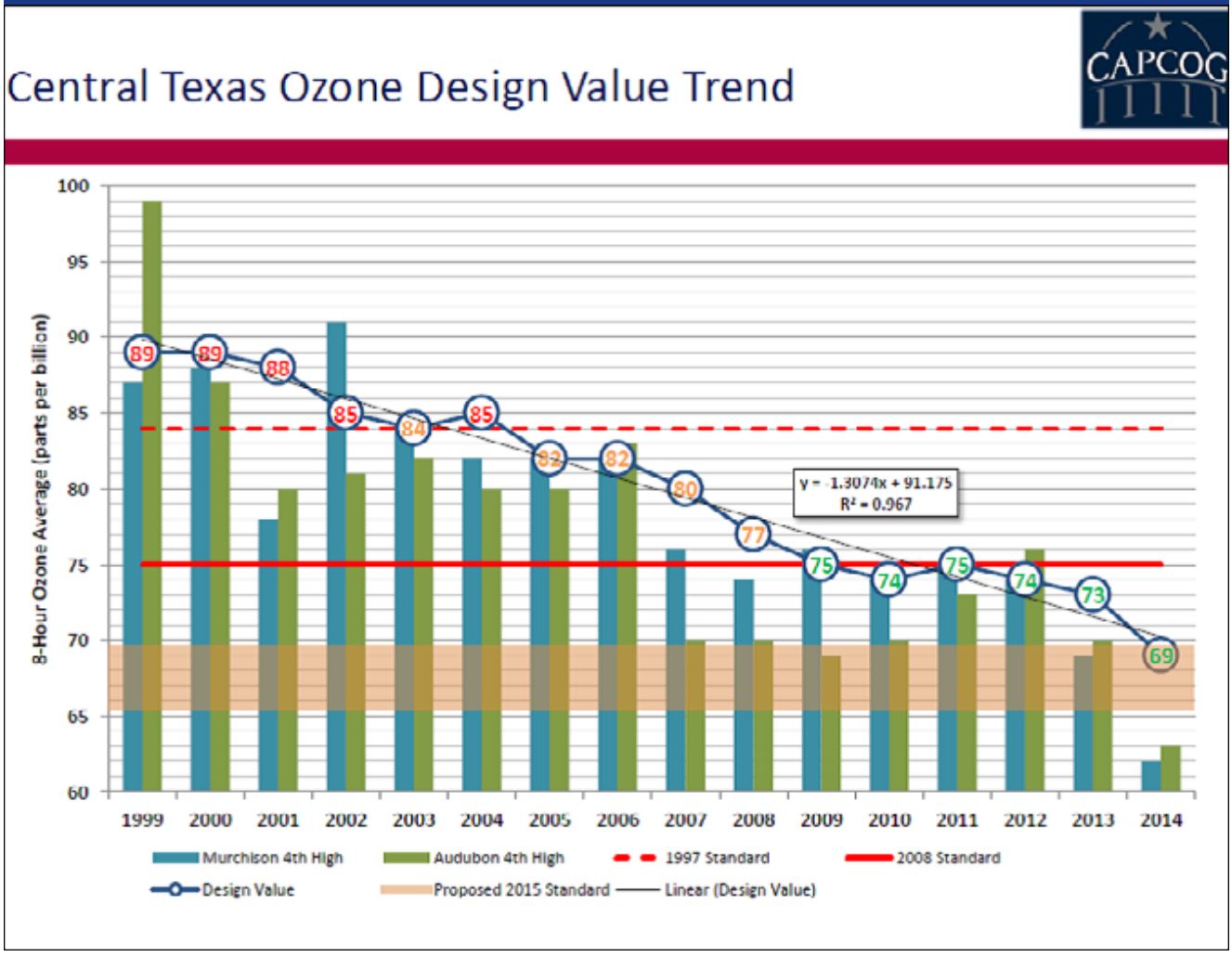
throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level ozone can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue.

The Austin-Round Rock Metropolitan Statistical Area is currently in attainment of the EPA 2008 National Ambient Air Quality Standards (NAAQS) for ground-level ozone. This means that our design value (the three-year rolling average of the fourth-highest, eight-hour average at either of the region's two regulatory monitors) is not above 75 parts per billion (ppb) (see Figure 27).

EPA is reviewing the ozone NAAQS and expects to finalize a new standard in October of 2015. EPA has proposed setting the ozone NAAQS to between 65-70 ppb. The region's 2014 design value is 69 ppb.

In the CAMPO planning area, on-road vehicles (e.g., cars, trucks, motorcycles) produce over half of the NO_x emissions and almost a quarter of the VOC emissions. Because transportation-related emissions are a large factor in ozone formation, MPOs located in regions that the EPA designates as non-compliant with the ozone NAAQS must satisfy additional requirements during the planning process. This is to ensure that emissions from

Figure 27: Central Texas Ozone Design Value Trend



proposed transportation projects do not undermine air quality mitigation efforts.

CAMPO is not subject to these transportation conformity requirements, but does emissions analysis to demonstrate that its long-range plan would "conform" to requirements if our status changes.

CAMPO has been a key collaborator in development of the region's four voluntary ozone reduction plans. The current plan, the Ozone Advance Program (OAP) Action Plan, has goals to:

- Stay in attainment of the 2008 eight-hour ozone NAAQS of 75 ppb;
- Continue reducing the region's eight-hour ozone design value to avoid being designated non-attainment for a new ozone NAAQS;
- Put the region in the best possible position to bring the area into attainment of the ozone standard expeditiously if it does violate an ozone standard, or is designated non-attainment;
- Reduce the exposure of vulnerable populations to air pollution when the region experiences high ozone levels; and,
- Minimize the costs to the region of any potential future non-attainment designation.

The OAP Action Plan includes 491 emission reduction commitments from 29 jurisdictions and other organizations. The OAP Action Plan can be found online at http://epa.gov/ozonepmadvance/pdfs/20131220austinplan.pdf

Energy Conservation

The U.S. Energy Information Administration estimates that the transportation sector used 70 percent of the 6.89 billion barrels of petroleum used nationwide in 2012. Emissions from the transportation sector are the largest contributor to ozone formation in the CAMPO region. Fuel conservation can contribute to improved air quality, reduced traffic congestion, and lower travel costs. CAMPO fosters fuel efficiency in the transportation system by:

- Supporting efforts to reduce travel demand by changing behaviors;
- Improving transportation system efficiency to reduce vehicle delay and wasted energy;
- Working with multi-jurisdictional partners in the efficiency and conservation measures of the region's air quality plan; and,
- Collaborating with regional partners on electric-vehicle infrastructure support.

Nationwide, fuel economy is improving. Federal fuel efficiency standards require a 54.5 mpg average fuel economy starting in model year 2025. This effort should reduce national oil imports by 400,000 barrels per day. Use of alternative fuel vehicles also contributes to the reduction in imported oil.

Alternative Fuel Vehicle Organizations

Lone Star Clean Fuels Alliance (formerly Central Texas Clean Cities), a local non-profit organization, promotes the use of alternative fuels for vehicles. Lone Star Clean Fuels Alliance provides a variety of services, such as grant-writing assistance, related to alternative fuels and alternative fuel vehicles.

The Central Texas Fuel Independence Project (CTFIP) also focuses on alternative fuels. CTFIP is a public and private initiative that is working to support awareness and increase market adoption of plug-in electric vehicles (PEVs), natural gas vehicles (NGVs), and the related infrastructure development in a ten-county region surrounding Austin and San Antonio. CTFIP collaborated with Austin Community College to launch a hands-on training program to give technicians, mechanics, truck drivers, and first responders experience working with PEVs and NGVs, and their associated infrastructure. They have also collaborated with

Bluebonnet and Pedernales Electric Cooperatives to expand the reach of public EV charging stations in the region, including rural areas.

Hydraulic Fracturing (Fracking)

While concerns about energy security and peak oil remain, recent developments in the exploration and extraction of shale oil have caused resurgence in gas and oil production. Hydraulic fracturing, or fracking, in the nearby Eagle Ford Shale Play brings the opportunity for economic growth, employment, and a boost to the nation's energy portfolio. Fracking also presents challenges to the transportation system in the Eagle Ford Shale Play area, where an increase in heavy-duty vehicle use damages pavement and raises environmental concerns. TxDOT estimates a 16-30 percent reduction in the functional life of pavement traveled by heavy-duty vehicles. These roads also experience crashes more frequently. Bastrop County is the only portion of the CAMPO region in the Eagle Ford Shale Play.

Flood damage on Burleson Road, Austin.

Fuel and Tax Revenue

The nation's transportation system relies on state and federal motor fuels taxes for support. Increasing fuel efficiency in vehicles reduces the amount of fuel purchased by consumers. Reductions in fuel purchasing mean a decrease in the fuel taxes that are vital to maintaining the transportation system.

Water Issues

The CAMPO region's growing population faces water availability issues. The Edwards Aquifer recharge zones and water sources are among the region's most environmentally sensitive areas. The region's rapid growth contributes to an increased demand for potable water. This increase, coupled with the recent drought, raises concerns about the potential for a water crisis. This water crisis could have an impact on the growth and development of the region. Water availability may influence which areas see population growth and affect the amount and location of demand on the transportation system.

The lack of water will have a major effect on the region's ability to accommodate more people. It will also increase the cost of water for existing residents. While CAMPO does not create water conservation plans, some of our partner jurisdictions have developed plans to implement water conservation strategies.

Bastrop Complex Wildfire Aftermath

Climate Change and Extreme Weather Vulnerability Assessment

Extreme weather events can damage and disrupt the region's transportation system, posing potential risks to public safety and security. Longer-term exposure to extreme weather can accelerate infrastructure deterioration, prompting the need for more frequent maintenance. Given the range of potential extreme weather impacts, it is important to assess and to address strategically the extreme weather vulnerabilities of the transportation system.

Recent examples illustrate some of the ways extreme weather has affected transportation. Although the region is in an ongoing drought, it is still vulnerable to flooding from flash floods and tropical storms. Significant flooding and road damage occurred during Tropical Storm Hermine in 2010 and the Halloween floods in 2013, as well as during other flooding events.

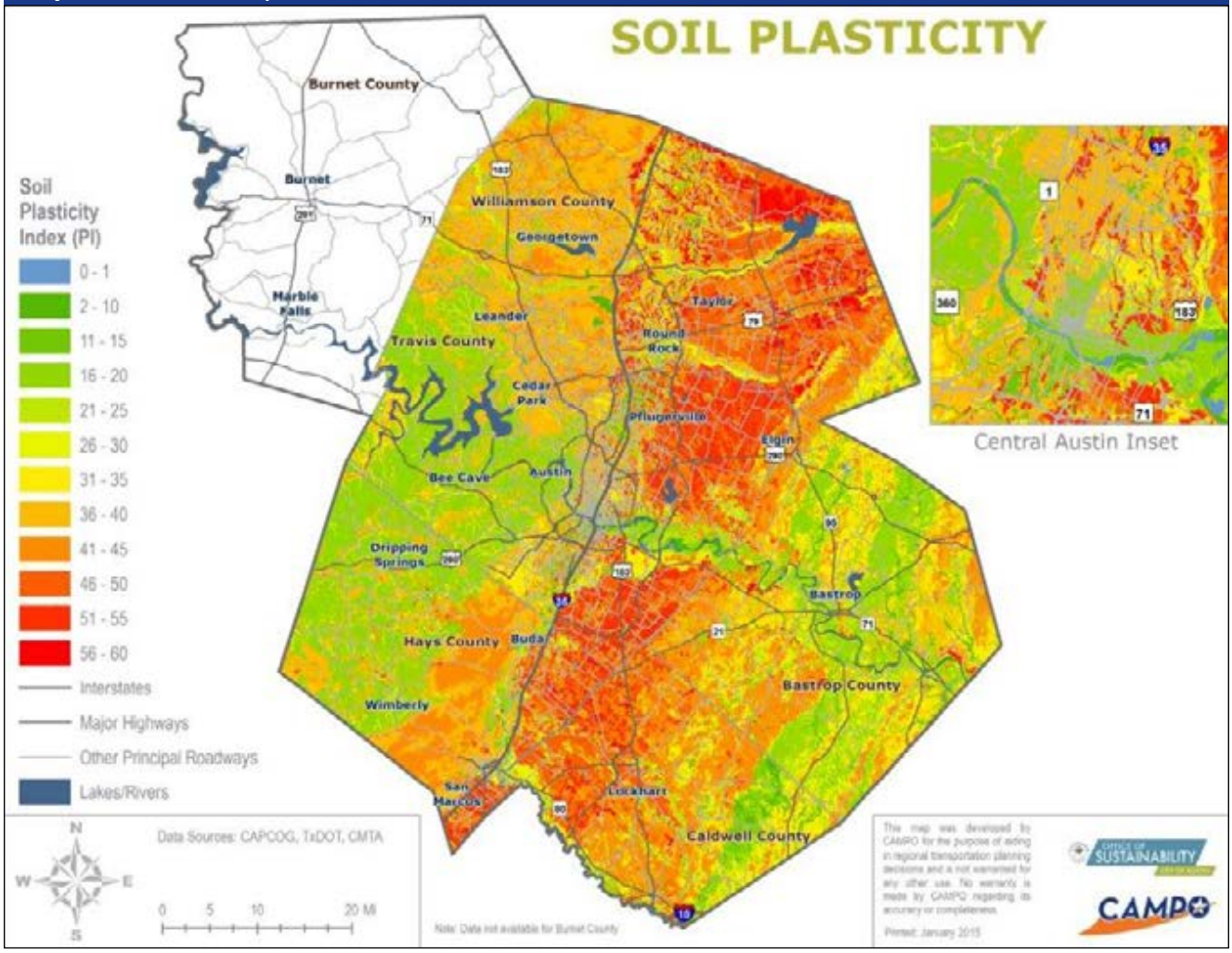
In 2011, the region experienced severe drought and a major heat wave, with a record-breaking 90 days where temperatures were at least 100 degrees. The combination of drought and heat contributed to the 2011 outbreak of wildfires on Labor Day weekend. Nine wildfires occurred in the region that weekend, burning almost 47,000 acres and destroying more than 1,800 homes and other structures. The Bastrop Complex Wildfire was the largest and most destructive of the Labor Day fires, burning more than 32,000 acres, destroying more than 1,600 homes, and killing two people.

In 2014, there were five ice days in the region, where actual or potential icy road conditions disrupted and discouraged travel. Icy conditions caused several hundred vehicle crashes and prompted officials to close many roads. Many schools, government offices, and businesses closed on these days, resulting in lost productivity.

How vulnerable is our transportation system to the impacts of extreme weather, now and in 2040? What can the region do to minimize vulnerabilities and to mitigate extreme weather impacts on the transportation system? To address these questions, CAMPO, in partnership with the City of Austin Office of Sustainability, applied for and received a grant from the Federal Highway Administration (FHWA) to assess the vulnerability of the region's transportation system to climate change and extreme weather. The vulnerability assessment:

- Categorizes extreme weather as floods, drought, extreme heat, wildfires and frozen precipitation;
- Examines regional characteristics that influence extreme weather effects;
- Identifies extreme weather sensitivity thresholds for

Map 32: Soil Plasticity



regional transportation infrastructure and potential consequences of exceeding thresholds;

- Identifies critical and potentially vulnerable transportation infrastructure for in-depth evaluation based on current and expected future conditions;
- Assesses current and future vulnerabilities using regional data, climate and growth projections, and limited hydrological modeling; and,
- Characterizes risk based on the likelihood of extreme weather occurrences and probable consequences.

This section contains a summary of the assessment results. The complete report will be available at campotexas.org.

The region's topography, geology and soil characteristics influence our extreme weather impacts. Roughly bisected by the Balcones Fault, the western part of the region is rocky Hill Country with little soil while the eastern part of the region is flatter, with deeper, softer soils. The region's geology also affects flood patterns, depicted in the map of the region's flood plains shown on Map 30.

Soil composition, particularly soil plasticity, affects transportation infrastructure when the soil shrinks and expands due to fluctuations in soil moisture. Deep, highly plastic soils in the eastern part of the region contribute to premature pavement cracking and buckling, shifting soils in the roadbed and damage to under-road utilities. The U.S. Department of Agriculture (USDA) identifies and maps soil plasticity. Map 32 shows the range of soil plasticity and the areas of highly plastic soils in the region (data was not available for Burnet County).

The region's sustained rapid growth also influences the impacts of extreme weather on the transportation system. As the region grows, the amount of impervious cover (buildings, parking lots, and roads) increases. Impervious cover prevents rain from soaking into the ground, increasing storm run-off and flooding. Traffic growth in previously rural areas can also strain and weaken transportation infrastructure intended for rural conditions, and built to rural design standards. Once weakened, the infrastructure is more susceptible to extreme weather deterioration.

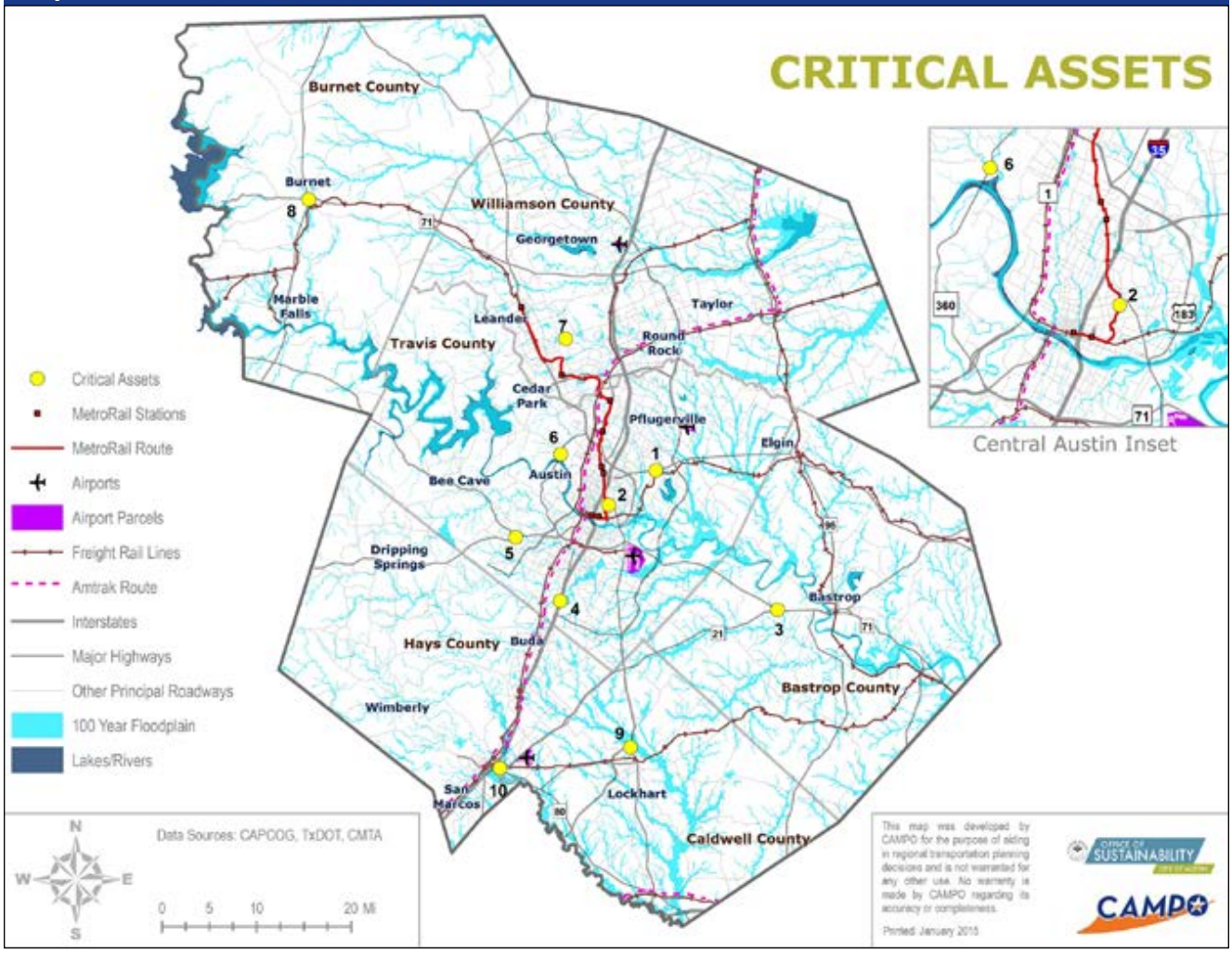
The project team consulted with regional transportation experts to define extreme weather sensitivity thresholds for regional transportation infrastructure. Sensitivity thresholds denote the points at which weather conditions affect transportation infrastructure. Table 21 summarizes the sensitivity thresholds and potential impacts.

Just as CAMPO uses forecast demographic and traffic data to model and evaluate 2040 traffic conditions, this study uses climate projections for the mid-21st century to evaluate the likelihood of the sensitivity thresholds occurring in 2040. The climate projections are from the Weather Research and Forecasting (WRF) regional climate model developed by the National Center for Atmospheric Research, and partners. Dr. Kerry Cook, University of Texas at Austin, used data from the WRF model to establish specific projections that correspond with the sensitivity thresholds. Dr. Cook identified three projections for each sensitivity threshold to establish threshold ranges and account for model uncertainty. The projections vary geographically; one is located in

Table 21: Extreme Weather Sensitivity Thresholds in Central Texas

Impact	Mode(s) Affected	Threshold
Flooding	Highways, Rail, Transit	General flood risk increases when rainfall > 2" in less than 12 hours Rural roads: >3.44" in 24 hours Principal arterials: > 7.64" in 24 hours Major highways: > 10.2" in 24 hours
Pavement cracking or other deterioration	Highways, Aviation	Extended temperature > 100°F (empirical) Average 7-day maximum temperature > 108° F (design) Drought lasting longer than 14 days Alternating wet and dry weather patterns, cycling between a few days or weeks Extremely wet conditions for > 1 month Temperatures < 50° F
Thermal misalignment	Rail	Risk increases when surface temperatures > 100° - 115° F
Air conditioning stress and failures	Rail, Transit, Aviation	Temperature > 100°F
Limited ability for maintenance and construction work	Highways, Rail, Transit	Temperature > 100°F
Icy, unsafe road conditions	Highways	Surface temperature ≤ 32° F and precipitation (any)
Damage to switches	Rail	Temperature ≤ 32° F and precipitation (> 3/16" of ice)
Wildfire	Highways, Rail, Transit	Keetch-Byram Drought Index ≥ 575 Relative humidity < 20% Winds > 15-20 mph La Niña conditions favoring Southern Plains Wildfire Outbreaks

Map 33: Critical Assets



the CAMPO region, one is 200 km to the north and one is 200 km to the west.

In general, the climate projections indicate that the 2040 climate will be hotter and drier:

- Summer average temperatures could increase by 2.9° to 3.6° Fahrenheit (F).
- Climate projections indicate an average of 34 more days per year with temperatures over 100° F. This means, on average, 48.8 days per year with temperatures over 100° F, up from an average 14.8 days per year at the end of the 20th century.
- The annual average seven-day maximum temperature could increase by 3.9° F to 4.1° F, from 99.7° at the end of the 20th century to 103.6°, assuming a 3.9° F increase.
- Climate projections indicate an average of three or four more dry days a year, or 280 dry days a year.
- Summer soil moisture could decrease by 4 to 10 percent.
- On average, we can expect one less icing day per year, or 0.6 days per year.
- Precipitation events, when they occur, may be more intense.

Regional transportation experts participated in a workshop to identify and evaluate a subset

of critical infrastructure that is potentially vulnerable to extreme weather. Experts identified critical assets based on their importance to regional transportation, potential vulnerability, and transferability of evaluation results to similar asset types in the region. Map 33 shows the location of the critical assets selected for in-depth evaluation. Please see the full report for the evaluation results and identification of the critical assets shown in Map 33.

The climate related vulnerability of transportation assets is evaluated by considering exposure (whether an asset might experience a given climate stressor), sensitivity (whether an asset might be damaged or disrupted if exposed to a given stressor), and adaptive capacity (the ability of the transportation system to cope with the consequences of damage or disruption to the asset). Risk ratings for assets, or asset types, are determined for each climate stressor based on the vulnerability evaluation results. The full report contains detailed vulnerability assessments and risk ratings for the assets that underwent in-depth evaluations. The results inform general vulnerability and risk assessments for similar asset types.

In general, the climate related risk to the region's transportation system is as follows:

- Wildfire risk is moderate to high. The expected hotter, drier climate increases the risk of wildfires occurring in the region. Wildfire only minimally damages roads themselves, but the right-of-way may sustain more significant fire damage. Erosion and road washouts can be a problem when heavy rains occur after a fire because there is not any vegetation to hold the soil in place. Wildfire evacuation is a concern, given the congested conditions on many major roads during peak burn periods (3 p.m. to 5 p.m.) and rural and suburban roads that are the only road serving a population.
- Drought risk varies depending on the soil composition underlying the transportation asset. Assets built on highly plastic soils have a moderate to high-risk rating. Highly plastic soils shrink and swell with fluctuations in soil moisture, causing damage to pavements, roadbeds, and underroad utilities.
- Flooding risk varies depending on the location and structure of the transportation asset. Engineers build major roads to more robust design standards so they withstand flood conditions better than minor roads. Roads in formerly rural, but now urbanizing areas may be higher risk since they possess lower design standards not intended to handle higher traffic volumes associated with urbanization.
- Extreme heat risk is low to moderate. Although exposure to extreme heat is virtually certain, most roads, and all major roads on the state system, have pavements formulated to withstand extreme heat with minimal deterioration. Smaller roads may be more vulnerable to heat effects, resulting in premature pavement degradation and asphalt rutting, and leading to ponding and potential vehicle hydroplaning when it rains. Extreme heat may pose risks or discomfort for transportation system users, as well as for construction and maintenance workers.
- Extreme cold and icing risk is low. Icing events can cause major disruption to the transportation system. These events are rare and may become more rare.

The CAMPO region can increase the transportation system's resiliency to extreme weather by implementing measures proactively. Some potential measures include:

- Evaluating potential wildfire evacuation routes to identify any bottlenecks or sole-access roadways and to determine if available capacity is adequate to conducting evacuations during congested conditions;

- Advancing best practices in mitigating the effects of highly plastic soil on roads;
- Evaluating minor arterials and other minor roads for localized flooding risks and mitigating accordingly; and,
- Facilitating additional research and collaboration between local and regional partners.

Environmental Justice and Title VI

The CAMPO 2040 Regional Transportation Plan supports a transportation system that meets the needs of all users. Through its Environmental Justice (EJ) program, CAMPO works to ensure that traditionally under-represented groups, such as racial and ethnic minorities and low-income residents, are involved in decision-making about the future development of the transportation system and that negative impacts of transportation projects do not disproportionately affect these residents.

The 1994 Presidential Executive Order 12898 directed every federal agency to "make achieving EJ part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." As a recipient of federal funds, CAMPO is required to comply with this mandate and with Title VI of the Civil Rights Act of 1964. Title VI prohibits discrimination on the basis of race, color, or national origin by requiring that no person in the U.S. shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. See Map 34 for designated EJ areas.

Table 22: Median Family Income (MFI) by County

County	2000 *Source: US Census SF3*	2010 *Source: ACS 5-yr 2010 SF3*	Percent Change
*Bastrop	$49,456	$60,012	21%
*Burnet	$43,871	$58,045	32%
*Caldwell	$41,300	$50,553	22%
Hays	$56,287	$74,471	32%
Travis	$58,555	$69,646	19%
Williamson	$66,208	$78,040	18%
**REGION	$54,531	$69,236	

**Counties became part of REGION after the year 2000*
***REGION MFI is the median value for MFI of all REGION census tracts*

Table 23: Minority Population by County

County	Total Minority Population	Minority Population as Percent of County Total Population	Minority Population as Percent of Regional Total Minority Population
Bastrop	31,725	43%	4%
Burnet	10,220	24%	1%
Caldwell	21,225	56%	3%
Hays	65,045	41%	8%
Travis	506,622	49%	64%
Williamson	153,198	36%	19%
REGION	788,035		*45%

**Non-White population as a percent of region total population*
Source: 2010 US Census SF1 DP1, HD01_S123

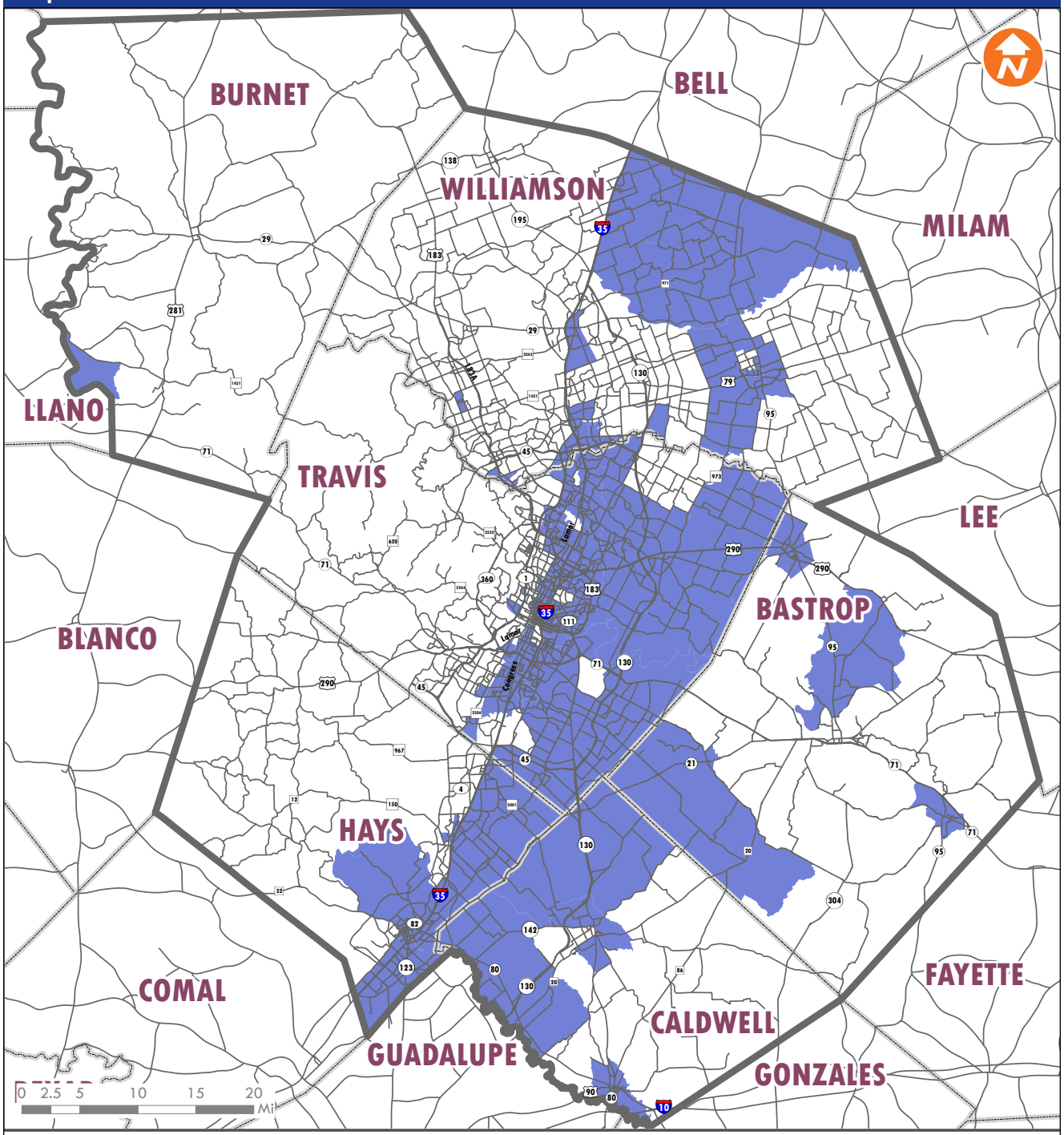
EJ Areas

CAMPO uses demographic data compiled by traffic analysis zones (TAZs) to identify EJ areas. EJ TAZs must meet one or more of the following thresholds:

"Low-income" TAZs:

- Have at least 50 percent of the population earning less than 80 percent of the county median family income (see Table 22); and/or,

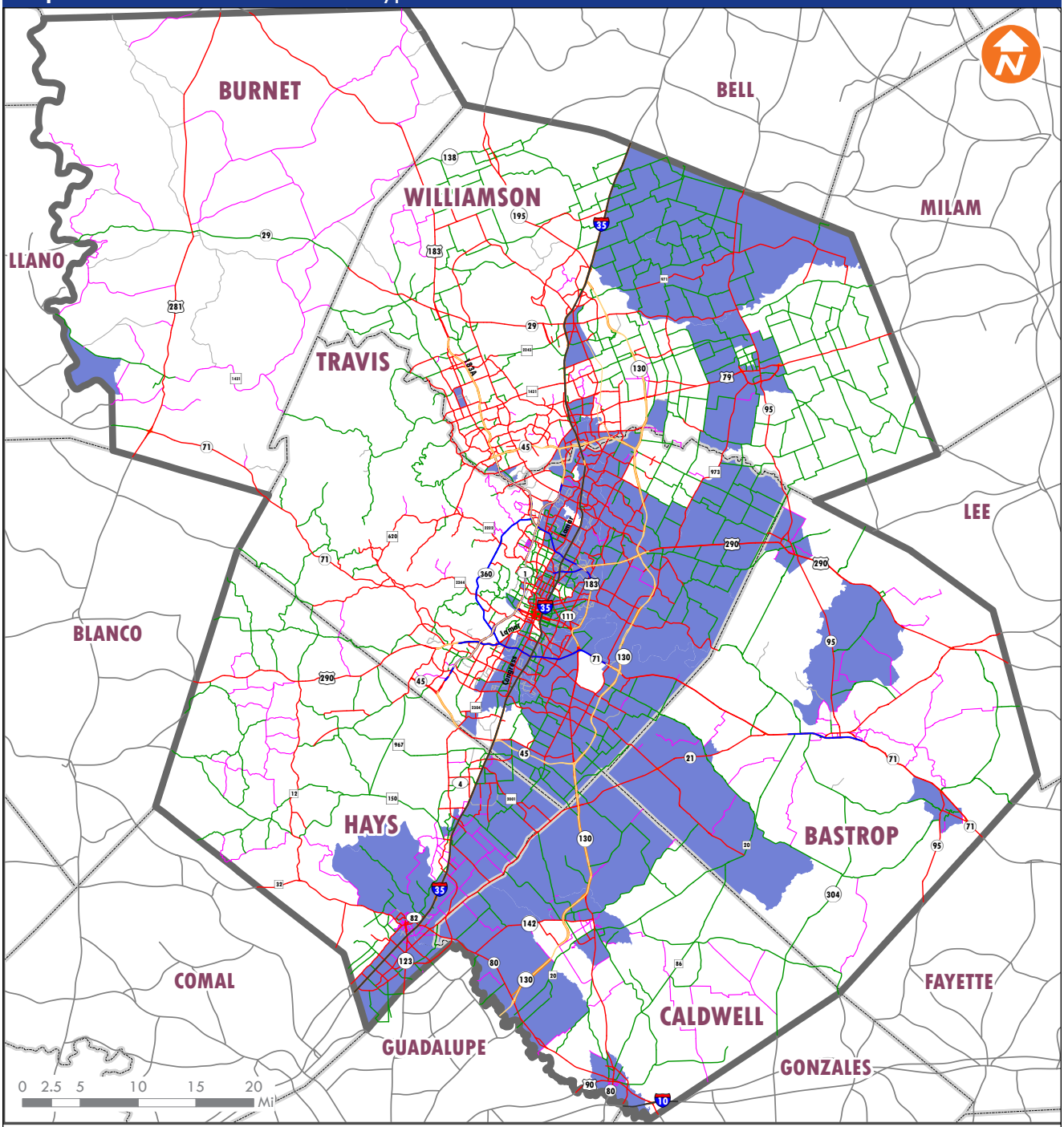
Map 34: Environmental Justice Areas



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: Census Bureau
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Environmental Justice Areas.mxd

Environmental Justice Category
- EJ Area
- Non-EJ Area

Map 35: EJ Areas with 2040 Road Types



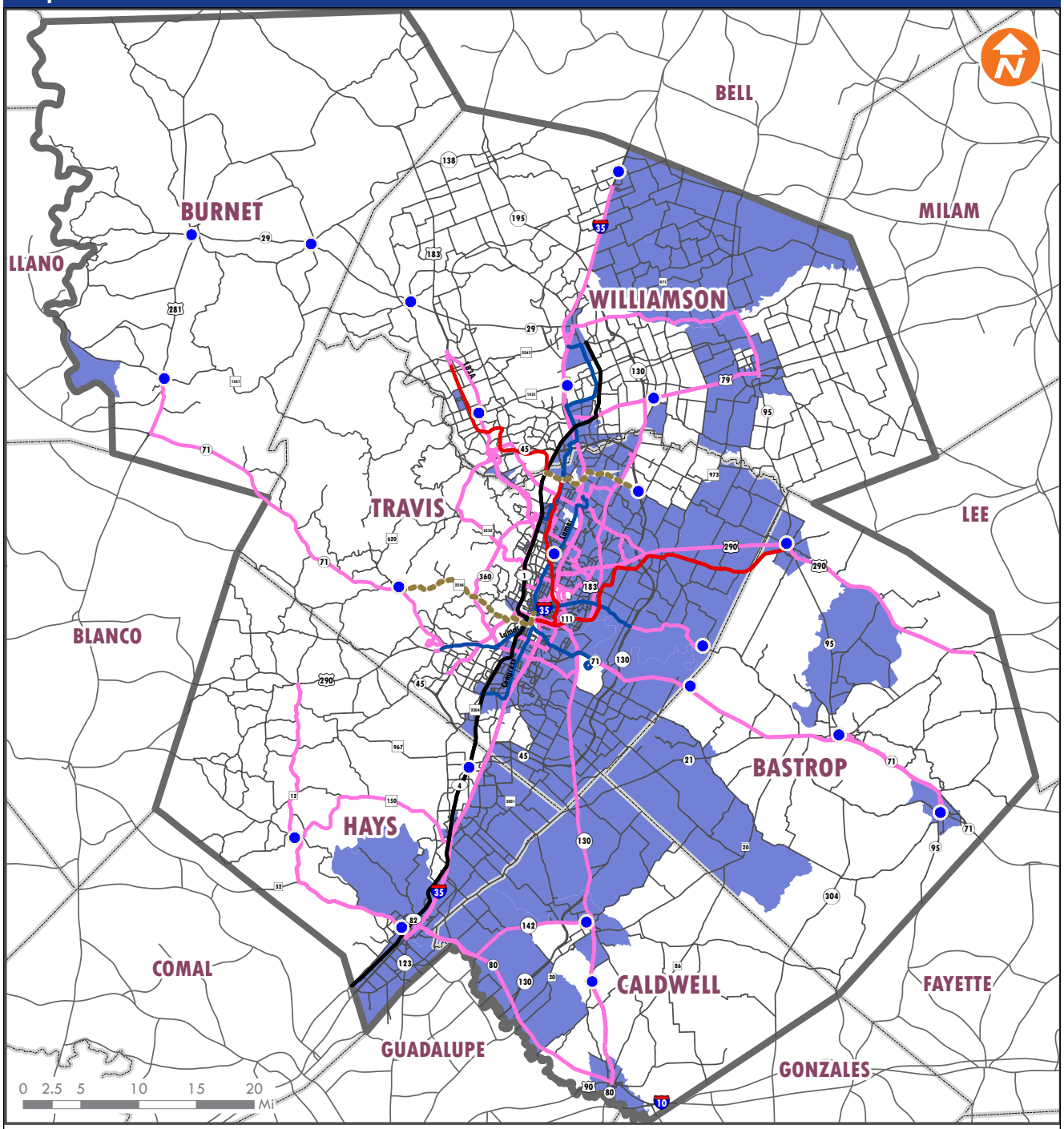
This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: Census Bureau
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Environmental Justice Areas with Roads.mxd

EJ Area Non-EJ Area

Road Type

- Interstate
- Freeway/Expressway
- Tolled
- Principal Arterial
- Minor Arterial
- Collector
- Local
- Ramp/Frontage /Direct Connector

Map 36: EJ Areas with 2040 Transit



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO, CapMetro, Census
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Revised Plan Maps\Transit Projects 2040 with EJ_09282015.mxd

- Commuter Rail
- Future Concept
- Intercity Rail
- Express Bus
- Rapid Bus
- Transit Center/ Park and Ride Facility
- Environmental Justice Area

- Have at least 25 percent of the population earning an income below the national poverty thresholds for a family of three ($17,373 in 2010, U.S. Census Bureau).

"Minority" TAZs have less than 50 percent of the population identifying themselves as "White, non-Hispanic" (see Table 23).

CAMPO used the following data from the U.S. Census Bureau to identify EJ TAZs:

- 2010 median family income levels;
- 2010 poverty data; and,
- 2010 ethnicity data.

CAMPO 2040 Plan EJ Analysis

CAMPO analyzed the 2040 transportation system to determine whether the system as envisioned would cause disproportionate negative impacts for the EJ population. Some of the road improvements include a tolling component, which may disproportionately burden low-income individuals. The plan also includes several Centers in EJ areas, focusing growth and economic opportunity. Map 35 and Map 36 show the EJ areas and the planned 2040 transportation system.

Travel Time Analysis

Travel time is one measure of equity in transportation. The distance traveled in a specified amount of time should be roughly the same whether the trip originated in an EJ area or not. If EJ areas have a significant time or distance disadvantage compared to non-EJ areas, then there are likely transportation system inequities.

CAMPO analyzed travel times using output from the travel demand model. CAMPO selected representative sample EJ and non-EJ zone pairs in Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson counties. CAMPO selected EJ zones with high populations and non-EJ zones based on comparable distance from major roads and similar population as the EJ zones. CAMPO calculated five-minute travel time intervals from five to 30 minutes for both the EJ and non-EJ zones for each zone pair, resulting in the area (in square miles) covered for each five-minute travel interval. CAMPO compared the area covered by each of the time intervals for each zone pair to determine whether there were any significant differences between the two. Since most people tend to think of their trips in five minute intervals, the area covered by a five-minute interval for the EJ zone of the zone pair is used to determine significant differences. If the area covered by an EJ zone five-minute interval is one half or less of the area covered by a non-EJ zone five-minute interval, then the EJ zone is initially determined to have a significant travel time disadvantage.

Results of the travel time analysis for 2010, 2020, and 2040 did not identify any significant differences in travel times between EJ and non-EJ zones. This finding indicates that implementation of the 2040 transportation system would not cause the EJ population any disproportionate negative impacts in terms of travel time. See Appendix H for detailed results of the travel time analysis.

Regional Toll Network Analysis

The interconnected network of existing and planned toll roads and express lanes form a regional toll network. Project sponsors evaluate the effects of toll roads and express lanes on the EJ community for individual road projects in accordance with the National Environmental Policy Act (NEPA). CAMPO also evaluates the regional toll network for the effect of the total interconnected network on the EJ community. CAMPO will conduct the *2040 Plan* Regional Toll Network Analysis (RTA) after the Transportation Policy Board adopts the *2040 Plan*. CAMPO's most recent RTA includes all planned and potential toll projects, except for the IH 35 express lanes. Given that IH 35 traverses both EJ and non-EJ areas, adding IH 35 to the RTA may not change results signifi-

Table 24: Tolled Highways 2010

Limits	Road	Inside EJ	Adjacent to EJ	Outside EJ	Total
FM 1431 to SH 45 N	183A	0	0	21.3	21.3
SH 45 N to Scofield Ridge Pkwy	Loop 1	14	3.1	0	17.1
IH-35 to US 183 S	SH 130	109.8	13.4	69.8	193
US 183 N to SH 130	SH 45 N	39.7	0	33.6	73.3
IH-35 to SH 130	SH 45 SE	25.8	0.8	0	26.6
	Total	189.3	17.3	124.7	331.3

Table 25: Non-Tolled Highways 2010

Limits	Road	Inside EJ	Adjacent to EJ	Outside EJ	Total
Guadalupe to Gonzales Co	IH-10	7.3	0	11.7	19
Bell Co to Comal Co	IH-35	234	201.2	62.1	497.3
Scofield Ridge to Davis Ln.	Loop 1	5	24.2	84.1	113.3
US 183 N to S. Lamar Blvd	Loop 360	0	0.8	55.8	56.6
East of FM 969 to Colorado River	SH 71	0	0	9.2	9.2
IH-35 to W. of Riverside Dr.	SH 71	17.7	0	0	17.7
SH 45 N to Springdale Rd	US 183	46.5	10.7	30.2	87.4
Airport Blvd to US 183	290 E	13.9	0	0	13.9
Parkwood Dr. to IH-35	290 W	14.9	2.8	22.4	40.1
	Total	339.3	239.7	275.5	854.5

Table 26: Tolled Highways 2040

Limits	Road	Inside EJ	Adjacent to EJ	Outside EJ	Total
US 183 N to SH 45 N	183A	0	0	58.3	58.3
SH 45 N to Scofield Ridge Pkwy	Loop 1	14	3.1	0	17.1
IH-35 to Guadalupe Co	SH 130	202.1	13.2	87	302.3
US 183 N to SH 130	SH 45 N	39.7	0	33.6	73.3
IH-35 to SH 130	SH 45 SE	25.8	0.8	0	26.6
Loop 1 to FM 1626	SH 45 SW	0	0	13	13
FM 973 to SH 130	SH 71 E	3.6	0	0	3.6
Silvermine Rd. to US 290 W	SH 71 W	0	0	5.1	5.1
US 290 to SH 71	US 183 S	42.4	0	0	42.4
US 183 S to FM 734	US 290 E	34.4	0	0	34.4
West of Scenic Brook to Joe Tanner	US 290 W	0	0	17.7	17.7
	Total	362	17.1	214.7	594

Table 27: Non-Tolled Highways 2040

Limits	Road	Inside EJ	Adjacent to EJ	Outside EJ	Total
Guadalupe to Gonzales Co	IH-10	7.3	0	11.7	19
Bell Co to Comal Co	IH-35	234	201.2	62.1	497.3
Scofield Ridge to La Crosse	Loop 1	5	24.2	92.6	121.8
US 183 N to S. Lamar Blvd	Loop 360	0	0.8	55.8	56.6
West of Colorado River to East of Loop 150 E	SH 71	0	0	14.1	14.1
IH-35 to FM 973	SH 71	24.2	16	0	40.2
SH 45 N to Springdale Rd	US 183	46.5	10.7	30.2	87.4
Airport Blvd to US 183	290 E	13.9	0	0	13.9
Parkwood Dr. to IH-35	290 W	14.9	2.8	22.4	40.1
	Total	345.8	255.7	288.9	890.4

Table 28: Express Lanes 2040

Limits	Road	Inside EJ	Adjacent to EJ	Outside EJ	Total
SH 130 to Posey Rd	IH-35	72.4	45.6	19	137
FM 734 to Slaughter Ln	Loop 1	1.8	7.2	32.1	41.1
SH 45 N to Loop 1	US 183 N	3.3	2.4	10.2	15.9
	Total	77.5	55.2	60.1	192.8

All numbers in lane miles
Networks used: HN_12172014 and HN_11172014

cantly. Please see the CAMPO website for the most recent RTA.

EJ Lane Mile Analysis

One way CAMPO evaluates equity in regards to tolling, is to measure the number of tolled lane miles in EJ and non-EJ areas. Tables 24 - 28, which show tolled and non-tolled lane miles for the 2010 and 2040 road networks, do not indicate a disproportionately negative impact to EJ areas.

Elderly and Aging Population

Nine percent of the CAMPO region's population is age 65 or older. CAMPO includes the aging and elderly as a population for additional consideration because many elderly do not drive and rely on public or other transportation services for critical trips (see Map 37 and Table 29).

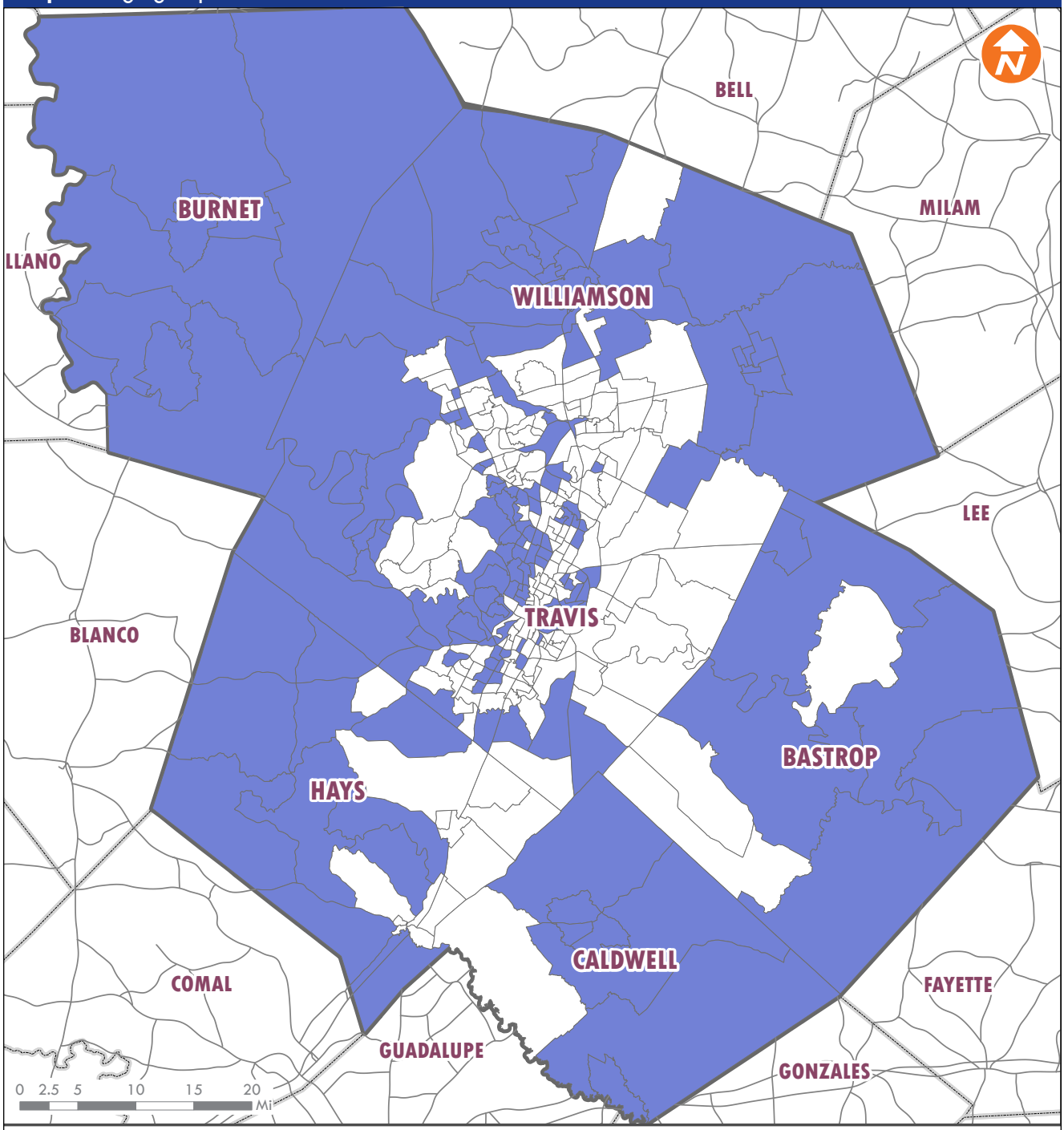
Disabled Population

Table 30 illustrates that 15 percent of the CAMPO region's population had a disability, according to the 2000 U.S. Census (the 2010 Census did not provide disability data at the census tract level, so the 2000 Census is the most reliable available data source).

In order to address the needs of both the aging and disabled populations, the CAMPO *2040 Plan*:

- Supports accessibility enhancements to fixed-route transit throughout the region;
- Calls for continued operation and enhancement of demand-response, door-to-door public transportation offered by providers throughout the region, including CARTS and Capital Metro; and,

Map 37: Aging Population

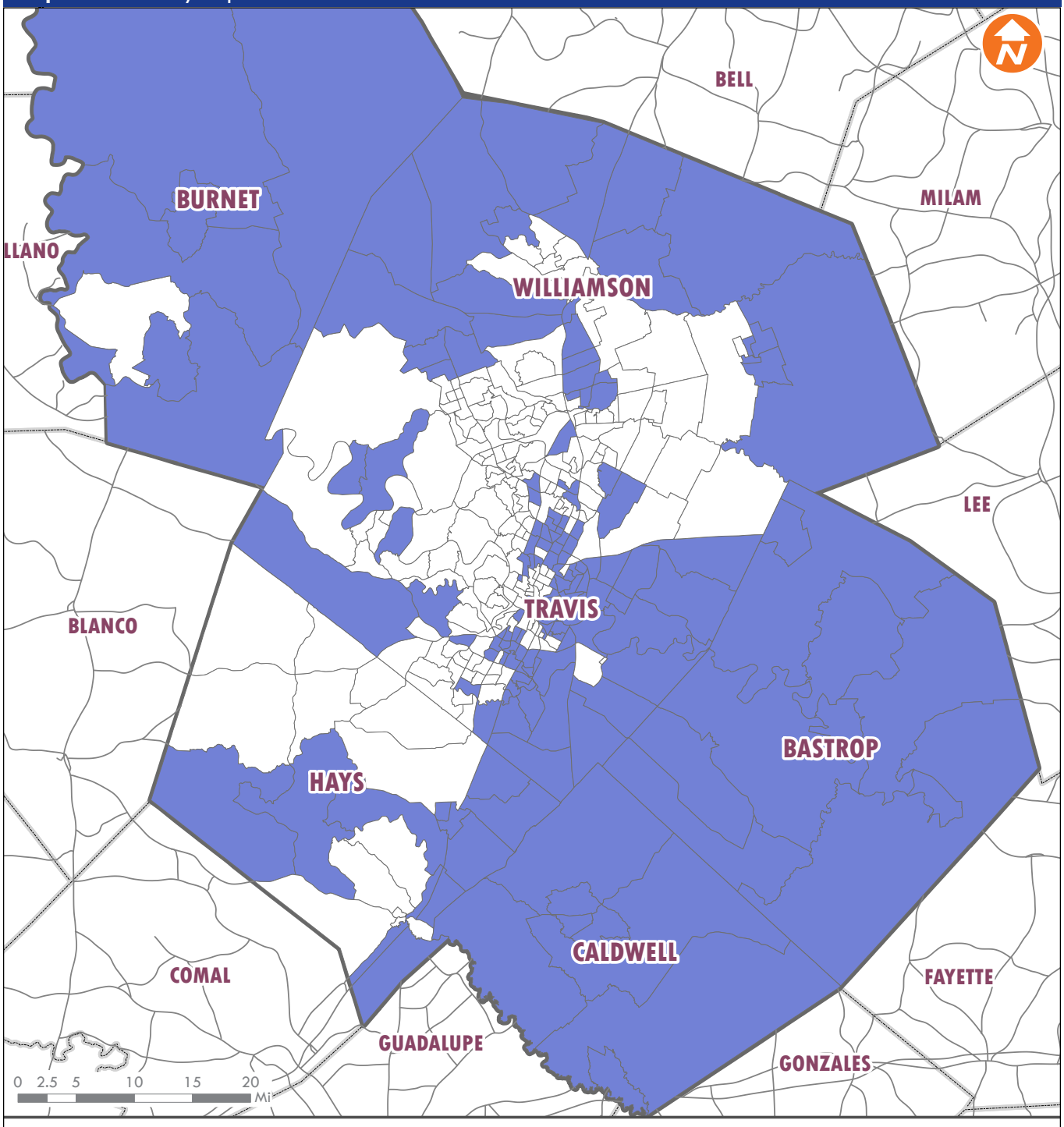


This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: Census
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Aging Population.mxd

Aging Population as Percent of Total Population

- > 9%
- <= 9%

Map 38: Disability Population

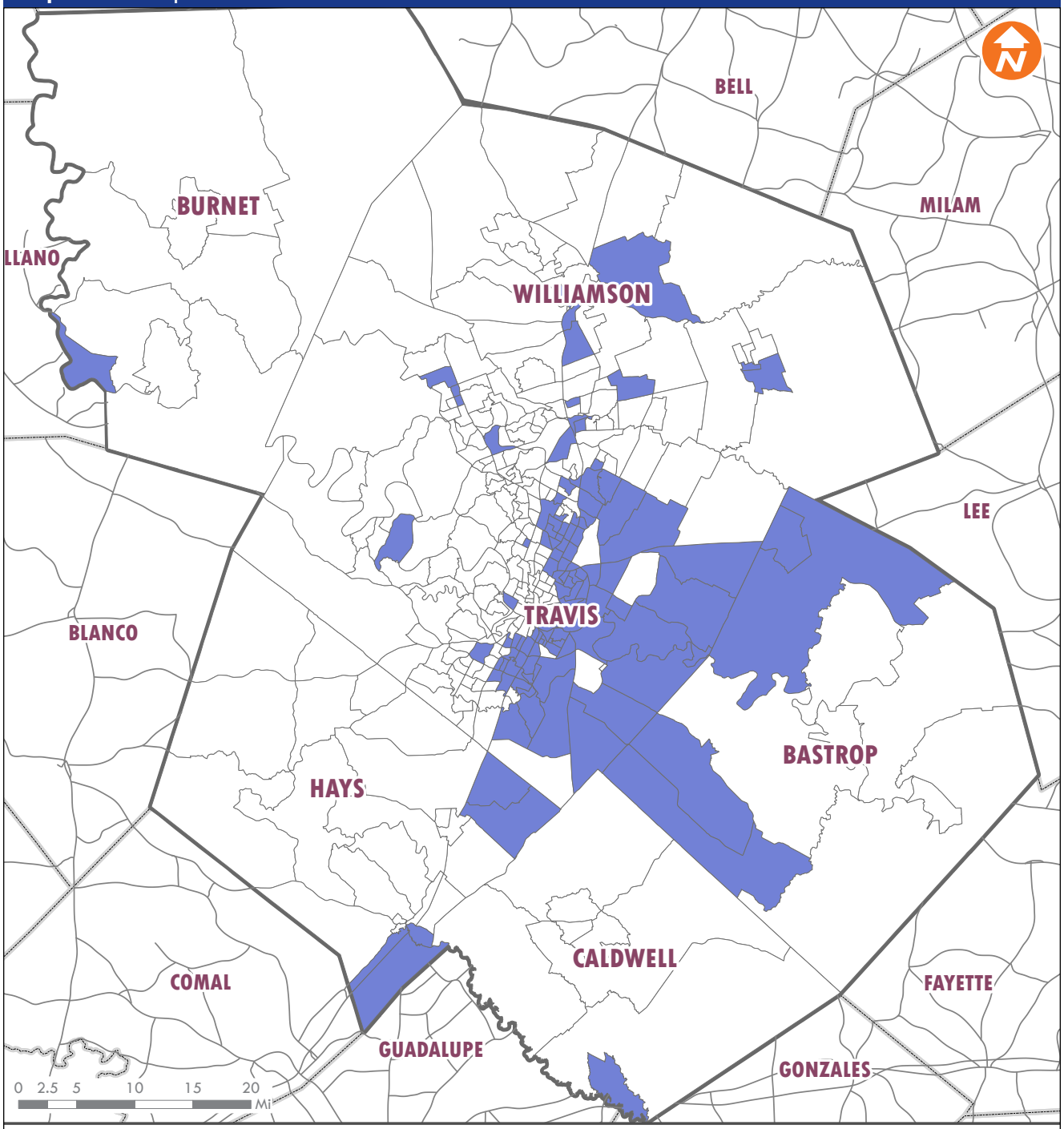


This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: Census

Disability Population as Percent of Total Population

>15%

Map 39: LEP Population



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: Census
Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\LEP Population.mxd

Limited English Proficiency Percent
- > 10.8%
- <= 10.8%

Table 29: 2010 - Elderly and Aging Population

County	Total	Percent of County	Percent of Region
Bastrop	8,501	11%	6%
Burnet	7,945	19%	5%
Caldwell	4,510	12%	3%
Hays	13,285	8%	9%
Travis	74,759	7%	51%
Williamson	37,681	9%	26%
REGION	146,681		*9%

**Aging population as a percent of region-wide total population*
Source: 2010 Census SF1 DP-1

Table 30: 2000 - Disabled Population

County	Disabled	Total County Population	Percent of County	Percent of Region
Bastrop	9,971	51,493	19%	6%
Burnet	6,975	31,029	22%	4%
Caldwell	6,071	28,089	22%	3%
Hays	13,219	90,285	15%	7%
Travis	111,514	746,159	15%	63%
Williamson	29,818	224,981	13%	17%
Region	177,568	1,172,036		*15%

**Disabled population as percent of region-wide total population*
Source: 2000 SF3 QTP21

Table 31: 2010 - Limited English Proficiency (LEP) Population

County	Total Persons Age > 5 years	LEP Popula-tion	LEP Percent of County	LEP-Spanish	LEP-Spanish Percent of County
Bastrop	67,274	6,060	9.0%	5,882	8.7%
Burnet	39,684	2,372	6.0%	2,192	5.5%
Caldwell	34,655	2,771	8.0%	2,717	7.8%
Hays	136,569	8,635	6.3%	8,023	5.9%
Travis	905,849	123,846	13.7%	104,076	11.5%
Williamson	359,629	23,597	6.6%	17,728	4.9%
Region	1,543,660	167,281	10.8%	140,618	9.1%

**2010 ACS 5-yr B16001; LEP persons are counted from a universe of total population greater than 5 years of age*
**The team used ACS 2010 data to maintain 5-year intervals from long-range plan to long-range plan. The CAMPO LEP Plan has updated LEP data on an annual basis.*

- Encourages the development of pedestrian facilities that meet the requirements of the Americans with Disabilities Act.

Limited English Proficiency Persons (LEP)

Eleven percent of the region-wide population are not proficient in English. LEP populations are included as a population of additional consideration because of a limited ability to read, speak, write, or understand English, which can be a barrier to full participation in regional transportation planning.

CAMPO addresses the needs of the LEP population through implementation of the CAMPO LEP Plan. The LEP Plan includes an analysis of census data to identify areas with high concentrations of LEP individuals so that CAMPO can tailor its outreach to these areas accordingly (see Table 31 and Map 39). It also describes the types of enhanced language services CAMPO provides and how CAMPO tracks occurrences when enhanced language services are used.

Emerging Technologies

The *2040 Plan* addresses a 25-year planning horizon. CAMPO updates its long-range plan every five years. Addressing emerging transportation technology is a challenge for MPOs, as the rapid speed of technological change does not fit well within the deliberative process of

long-range planning. Even the five-year interval between plan updates will see tremendous changes. MPOs need to stay aware of emerging technologies, as some may quickly become standard technologies.

Applications For Mobile Devices

Transportation-related mobile applications or "apps" are having a noticeable effect on trip planning. People now have real-time access to traffic information, road conditions and closures, transit schedules and timeliness, availability of car or bicycle share vehicles, and even calories consumed while bicycling or walking.

The continued development of apps is likely to affect travel demand management profoundly. For example, Metropia, which is beta testing in the CAMPO region, combines real-time, multimodal data with incentives for commuters to make advantageous trip-planning choices.

Dynamic Tolling

The Central Texas Regional Mobility Authority (CTRMA) is constructing the CAMPO region's first express lane that will use dynamic toll pricing as part of the MoPac Improvement Project. Tolls will vary to ensure at least a minimum speed. Toll rates rise if the lane becomes overcrowded and drop when it is clear.

Researchers at the University of Texas at Austin Center for Transportation Research (CTR) propose Credit-Based Congestion Pricing. Vehicles would have windshield stickers (toll tags) loaded with a monthly travel allowance. Tolls would be variable, congestion-based, and deducted from the allowance amount. If a vehicle's travel along congested toll roads exceeds its allowance amount, the account receives a bill for the overage.

Connected and Autonomous Vehicles

Technological innovations are changing how cars of the future might operate. Communication technology connects cars to each other (V2V or vehicle-to-vehicle), to roadside infrastructure (V2I or vehicle-to-infrastructure) or to a communications system (such as to the internet). These technologies may manifest themselves as automatic braking to avoid collisions, or real-time travel condition notification to allow for route modification.

Autonomous vehicles, popularly known as "self-driving cars," are quickly becoming a reality. Agricultural and mining operations already use self-driving cars. Some passenger cars are now equipped with a "self-parking" feature. Many automobile manufacturers and research organizations are developing autonomous vehicle technology. Developers are building large testing districts to simulate urban areas and provide real-world scenarios to test autonomous vehicles.

While this technology is developing rapidly, autonomous vehicles are not likely to be in widespread use before the next plan update. Use of autonomous vehicles could require significant modifications to the transportation system, but might also use existing capacity more efficiently. Autonomous vehicles could significantly lower the number of crashes, and might substantially change car ownership and travel patterns.

High-Speed Rail

With long distances to cover between its major cities, Texas is a logical candidate for high-speed, or higher-speed, rail. Four of the nation's 15 largest cities are in Texas, and discussions are already underway regarding higher-speed rail between Dallas and Houston. The proposed route for this new high-speed service is east of the capital area roughly along the IH 45 corridor. The proposed project would reduce travel between Dallas and Houston from approximately four hours to 90 minutes.

Freight Shuttle

Development of a monorail system is frequently suggested during public comment. While members of the public typically envision monorail as a public transportation mode, TTI

High speed rail is now being studied in Texas.

proposes an elevated rail system for freight called the Freight Shuttle System. In concept, this system would move automated containers, or other freight units, on an elevated rail system over distances of up to 600 miles.

Transfix Freight App

Transfix, the start-up digital freight marketplace, won the 2015 Transportation Research Board Conference's "Six Minute Pitch" contest with their app to connect freight carriers and shippers. Transfix maintains a list of qualified drivers whom they can match with nearby shipment delivery needs. The app provides real-time tracking information. This approach to freight delivery minimizes the time drivers spend with empty vehicles, maximizing efficiency.

The Wire, Tri-Track, and Hyperloop

While some proposals appear fanciful at first glance, visionary concepts can become tomorrow's mainstream applications. The Wire is a proposed gondola system that could move people along corridors in the CAMPO region on a system that looks like multiple ski-lift stations. Operating on overhead wires and accessing this mode from the upper floors of buildings is part of the proposal. It would operate on overhead wires with passengers accessing the gondola cars from the upper floors of buildings.

A second proposal for the CAMPO region is the Tri-Track system. The Tri-Track is a vehicle-guideway system for aerodynamic neighborhood electric vehicles that could operate on city streets. They would operate on a guideway system projected to allow vehicles to travel at 180 mph.

The Hyperloop is a proposed transportation method based on the principles of the pneumatic tubes used at bank drive-through windows. The objective is to have vehicles that would move through low-friction tubes, allowing for high-speed travel. Texas may eventually host a test facility.

2040 PLAN
GET INVOLVED – GET MOVING

Chapter 5
Action Plan and Projects

2040 PLAN

GET INVOLVED – GET MOVING

The CAMPO 2040 Plan will shape the region's transportation future for our generation and the next.


STOP

Chapter 5
Action Plan and Projects

ACTION PLAN

Without implementation, plans are just words on a page. The CAMPO Transportation Policy Board developed this document as an active guide to shape our transportation future. The following CAMPO action items will bring the *CAMPO 2040 Regional Transportation Plan* to life.

Improve IH 35

Implement all IH 35 projects, Integrated Corridor Management (ICM), and incident management to improve safety, reduce congestion, and improve economic competitiveness.

Balance Project Prioritization

Prioritize projects by balancing immediate needs to improve safety and mobility with preparation for future growth. Coordinate regional and local project implementation to provide a seamless transportation experience.

Accelerate Project Delivery

Coordinate with state, regional, and local project sponsors to reduce administrative delays. Focus funding on projects that are "ready to go" and work with local governments to potentially establish time limits on use of federal funding.

Integrate Transportation and Land Use

Target 50 percent of STP-MM funding to support the development of Centers identified on the CAMPO Centers map. Encourage local governments to make land use changes that support the Centers concept. Monitor the status of these Centers and produce annual reports. Improve tools to analyze transportation and land-use interaction.

Implement High-Capacity Transit Projects

Work with urban and rural transit agencies and transportation agencies to implement high-capacity transit projects from Capital Metro's Service Plan and Project Connect, as well as key transit projects in the six-county region.

Develop a Regional Bicycle and Pedestrian Plan

Coordinate plan development with state, regional, and local implementing agencies, and with the bicycle and pedestrian communities. Incorporate the Regional Bicycle and Pedestrian Plan into the *CAMPO 2040 Regional Transportation Plan*.

Support Travel Demand Management (TDM) Initiatives

Promote available TDM programs, including the CAMPO Commute Solutions Program, and provide implementation tools. Advance best practices such as teleworking, flexible schedules, ridesharing, and trip planning.

Conduct an Arterial Streets Study

Evaluate the region's arterial street network to identify opportunities for eliminating gaps in the system; installing high capacity transit, bicycle and pedestrian facilities, and connections between Centers; and for implementing coordinated signal timing plans, traffic flow improvements, and other transportation system management (TSM) treatments.

Increase Extreme Weather Resiliency

Evaluate the adequacy of potential wildfire and flood evacuation routes; identify opportunities to increase system redundancy and alternate routes; and advance best practices in addressing drought related impacts on the transportation system.

Advance System Preservation

Provide a forum for information sharing and advancing best practices.

Promote Air Quality Improvement

Participate in regional voluntary air quality improvement plans. Analyze transportation-related emissions and encourage actions to reduce them.

Engage the Public in Transportation Decision-making

Invite public participation through a variety of methods, including online and in-person opportunities.

Foster an Equitable Transportation System

Support the implementation of a multi-modal transportation system that can be accessed by all users and provides equitable benefits for all.

Figure 28: Transportation Planning Process

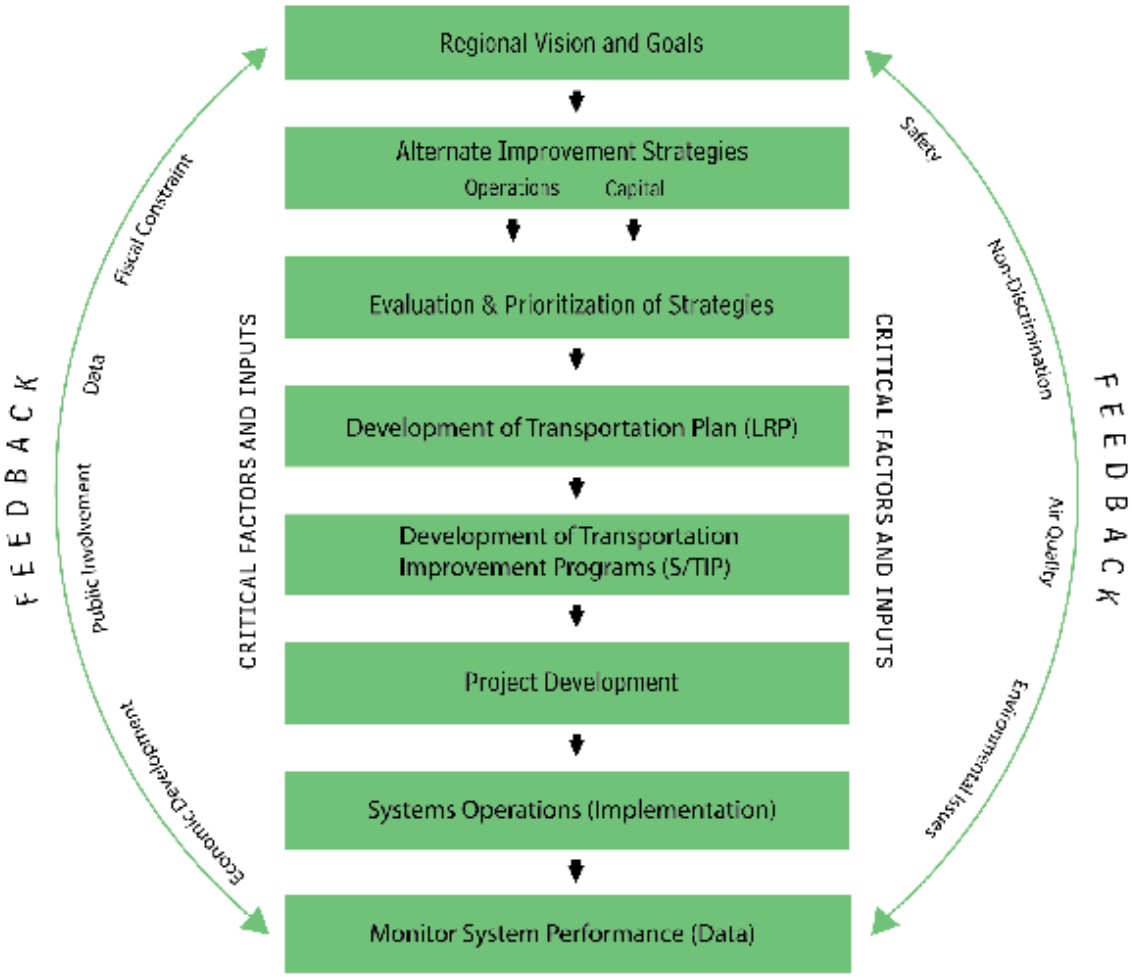


Table 32: Road Projects

This is the list of road projects in the fiscally constrained portion of the *CAMPO 2040 Regional Transportation Plan*. These projects are expected to be funded between 2015 and 2040, with local and regional (state and federal) funds, as noted.

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
81	TxDOT		Hays	IH 35 - Hays County	SH 45 SE - Posey Road	IH 35 Improvement Projects	2020	$1,500.0	Regional
82	TxDOT		Travis	IH 35 - Travis County	SH 45 N - SH 45 SE	IH 35 Improvement Projects	2020	$1,940.0	Regional
83	TxDOT		Williamson	IH 35 - Williamson County	SH 45 N - SH 195 N	IH 35 Improvement Projects	2020	$815.0	Regional
84	Buda		Hays	IH 35 / OSR Connector	Old San Antonio Rd - IH 35	New 2-lane undivided	2018	$0.1	Local
89	Round Rock		Williamson	US 79	IH 35 - A. W. Grimes Boulevard	Reconstruct to a 6 lane divided roadway with sidewalks	2030	$14.4	Regional
90	Williamson		Williamson	US 183 N	FM 970 - FM 3405	Widen from 4 lanes to 4 lanes with median (future frontage roads)	2018	$17.1	Local
91	Williamson		Williamson	US 183 N	FM 3405 - SH 29	Widen from 4 lanes to 4 lanes with median (future frontage roads)	2018	$40.9	Local
92	CTRMA		Travis	US 183 N	Loop 1 N - RM 620	2 Express Lanes in each direction	2019	$225.7	Regional
93	CTRMA	TxDOT	Travis	US 183 S	US 290 - Boggy Creek	Completion of environmental document, traffic and revenue studies, final engineering, ROW acquisition, utility relocation and construction for 6 tolled mainlanes and 4 to 6 continuous, non-tolled access road lanes, project may be phased.	2016	$332.3	Regional
94	CTRMA	TxDOT	Travis	US 183 S	Boggy Creek - SH 71	Completion of environmental document, traffic and revenue studies, final engineering, ROW acquisition, utility relocation and construction for 6 tolled mainlanes and 4 to 6 continuous, non-tolled access road lanes and operational improvements on SH 71.	2018	$319.7	Regional
95	TxDOT		Bastrop	US 290 E Hurricane Evacuation Route	1 mile east of FM 696 - Lee County Line	Reconstruct existing 4-lane undivided rural principal arterial to a 4 lane divided rural principal arterial.	2018	$57.1	Regional
96	CTRMA	TxDOT	Travis	US 290 W	West of RM 1826 - Loop 1	Construct 6-lane tolled turnpike with frontage roads	2018	$529.0	Regional
97	Hays		Hays	US 290 W	Blanco County Line - RM 165	MAD-4	2030	$25.9	Local
98	Hays		Hays	US 290 W	RM 165 - NF 2	MAD-4	2030	$25.9	Local
99	Hays		Hays	US 290 W	RM 12 - Nutty Brown Rd	MAD-6	2035	$21.8	Local
100	Travis		Travis	US 290 W	RM 1826 - Nutty Brown Rd	Widen to MAD-6	2040	$17.5	Regional

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
102	CTRMA		Travis	Loop 1	Cesar Chavez - Slaughter	2 Express Lanes in each direction - MoPac South*	2020	$352.8	Regional
103	San Marcos		Hays	Loop 82	LBJ Dr - IH 35 (Two way)	MAD-4	2035	$1.2	Local
104	San Marcos		Hays	Loop 82 (Phase 1)	Guadalupe St/Grove St - LBJ Dr (One way)	MAD-4	2035	$0.2	Local
105	San Marcos		Hays	Loop 82 / Aquarena Springs Dr	IH 35 - Sessom Dr	MAD-4	2035	$5.1	Local
106	San Marcos		Hays	Loop 82 / Guadalupe	University Dr - Grove St (One way SB)	MAD-4	2035	$3.8	Local
107	San Marcos		Hays	Loop 82 / LBJ	University Dr - Grove St (One way NB)	MAD-4	2035	$2.4	Local
108	San Marcos		Hays	Loop 82 / University Dr	Sessom Dr - Guadalupe St	MAD-4	2035	$2.0	Local
109	Bastrop County		Bastrop	SH 21	SH 71 - Caldwell County Line	Construct MAD-4 or Super 2	2023	$185.9	Local
110	Caldwell		Caldwell	SH 21	Hays County Line - SH 130	Widen to 4 lanes	2025	$14.9	Local
111	Hays		Hays	SH 21	Caldwell County Line - CR 159 (Yarrington)	MAD-6	2030	$32.2	Local
112	Hays		Hays	SH 21	CR 159 (Yarrington) - SH 80	MAD-6	2030	$12.5	Local
113	San Marcos		Hays	SH 21 Extension	SH 80 - IH 35 at Posey Rd	MAD-4	2035	$24.4	Local
114	CTRMA	TxDOT	Hays / Travis	SH 45 SW	Loop 1 S - FM 1626	Construction of a 4-lane tolled freeway (Project may be phased); shared use path where feasible	2015	$108.1	Regional
115	Hays	Buda	Travis / Hays	SH 45 SW-E	FM 1626 - IH 35 S	Environmental and preliminary engineering analysis for a new freeway (Design only)	2025	$2.9	Local
116	TxDOT		Bastrop	SH 71	west of Colorado River - east of Loop 150 E	Construct 4-lane freeway with 3-lane frontage roads	2015	$45.4	Regional
120	CTRMA	TxDOT	Travis	SH 71 W	Silvermine Dr. to US 290	Construct tolled lanes and frontage road	2018	$200.0	Regional
122	Caldwell		Caldwell	SH 80	FM 1979 - SH 130	Widen to 4 lanes	2025	$55.9	Local
123	Hays		Hays	SH 80	SH 21 - Caldwell County Line	MAD-6	2030	$2.1	Local
124	Caldwell		Caldwell	SH 80	County Line Road - FM 1979	Widen to 6 lanes with raised median	2035	$100.4	Regional
125	San Marcos		Hays	SH 80	IH 35 - SH 21	MAD-4	2035	$3.6	Local
126	San Marcos		Hays	SH 80 / E Hopkins	Moore St - Loop 82	MAD-4	2035	$1.2	Local
127	San Marcos		Hays	SH 80 / E Hopkins	Loop 82 - CM Allen	MAD-4	2035	$0.5	Local
128	San Marcos		Hays	SH 80 / E Hopkins	CM Allen - IH 35	MAD-4	2035	$3.8	Local

*Study all options for the proposed MoPac South expansion including both 1 and 2 Express Lanes in each direction, as well as no-build.

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
129	San Marcos		Hays	SH 80 / Old RR 12	RM 12/Wonder World Dr - Holland St	MAD-4	2035	$7.2	Local
130	San Marcos		Hays	SH 80 / Old RR 12	Holland St - Lindsey	MAD-4	2035	$2.2	Local
131	San Marcos		Hays	SH 80 / Old RR 12 / Moore St	Lindsey - Hopkins	MAD-4	2035	$0.7	Local
132	Hays		Hays	SH 80 at Old Bastrop Hwy (CR 266)	east of Old Bastrop Hwy (CR 266) - east of Old Bastrop Hwy (CR 266)	Construct center left-turn lanes	2016	$1.5	Regional
133	Smithville		Bastrop	SH 95	Loop 230 - Smithville High School	Add continuous turn lane and sidewalks (both sides)	2015	$4.2	Regional
134	Smithville	TxDOT	Bastrop	SH 95	Smithville High School - Loop 230 at Fawcett Street	Construct recommendations from the in-progress SH 95 study. Improvements could include sidewalks, shoulders, turn lanes and drainage improvements.	2023	$3.4	Regional
136	Hays		Hays	SH 123	Wonder World Dr - Guadalupe County Line	MAD-6	2025	$6.6	Local
137	San Marcos		Hays	SH 123	IH 35 - FM 621	MAD-6	2025	$0.7	Local
138	San Marcos		Hays	SH 123	FM 621 - Wonder World Dr	MAD-6	2030	$3.3	Local
139	Caldwell		Caldwell	SH 142	SH 80 - Yarrington Road Extension	Widen to 4 lanes	2025	$40.3	Local
140	Caldwell		Caldwell	SH 142	Yarrington Road Extension - FM 150 Extension	Widen to 4 lanes	2025	$40.4	Local
141	Caldwell		Caldwell	SH 142	FM 150 Extension - SH 130	MAD 4	2025	$8.8	Local
142	Hays	San Marcos	Hays	FM 110 E - Phase 1 Interim	IH 35 N - SH 123	MAD-2	2015	$61.5	Local
143	Hays	San Marcos	Hays	FM 110 E - Phase 2 Ultimate	IH 35 N - Turnersville Rd Extension (NF 1)	MAD-4	2030	$4.5	Local
144	Hays	San Marcos	Hays	FM 110 E - Phase 2 Ultimate	Turnersville Rd Extension (NF1) - SH 123	MAD-4	2030	$26.6	Local
145	Hays		Hays	FM 150 Extension / NF 17 (Kyle)	FM 150 - Kyle Loop	MAD-4	2025	$10.4	Local
146	Hays		Hays	FM 150 W	RM 12 - RM 1826	MAD-4	2025	$5.7	Local
147	Hays		Hays	FM 150 W	RM 1826 - FM 3237	MAD-4	2025	$15.6	Local
148	Hays		Hays	FM 150 W	FM 3237 - Kyle Loop SW	MAD-4	2025	$12.5	Local
149	Hays		Hays	FM 150 W	Kyle Loop SW - FM 2770	MAD-4	2025	$3.1	Local
150	Kyle		Hays	FM 150 W / Center St	Rebel Dr - IH 35	MAD-2	2025	$11.0	Local
151	Kyle		Hays	FM 150 W / Rebel Dr	FM 2770 - Center St	MAD-2	2025	$9.5	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
152	Hays		Hays	FM 165	US 290 - Blanco County Line	MAU-2	2030	$23.1	Local
153	Hays		Hays	FM 621 / Staples Rd	SH 123 - Guadalupe Line	MAU-2	2025	$14.8	Local
154	Williamson	TxDOT	Williamson	FM 734 / Parmer Ln	RM 1431 - Brushy Creek	Widen from 4 lanes with median to 6 lanes with median	2015	$14.4	Local
155	Williamson	TxDOT	Williamson	FM 734 / Parmer Ln	Brushy Creek - Spectrum Dr	Widen from 4 lanes with median to 6 lanes with median	2015	$4.0	Local
156	Travis		Travis	FM 812	FM 973 N - Maha Loop Rd	Improve to MAD-4	2038	$28.0	Local
157	Travis		Travis	FM 812	Maha Loop Rd - Travis County Line	Widen to MAD-4	2040	$11.3	Local
158	Hays		Hays	FM 967	FM 1626 - Main St	MAD-2	2020	$13.8	Local
159	Hays		Hays	FM 967	FM 1826 - FM 1626	MAU-4	2025	$17.4	Local
160	Hays	Buda	Hays	FM 967 / S. Loop 4 / S. Main St	Main St - W Goforth	MAU-4	2020	$1.7	Local
161	Hays	Buda	Hays	FM 967 / S. Loop 4 / S. Main St	W Goforth - IH 35	MAU-4	2020	$0.7	Local
163	Travis		Travis	FM 969	FM 3177 - Hunters Bend	Improve to MAD-4	2017	$18.0	Regional
164	Travis		Travis	FM 969	Hunters Bend - Webberville City Limit	Improve to MAD-4	2038	$49.7	Local
165	Travis		Travis	FM 973	FM 973 Relocation - SH 71 E	Widen to MAD-4	2040	$61.2	Regional
166	Travis		Travis	FM 973	SH 71 E - FM 812	Widen to MAD-4	2040	$26.5	Regional
167	Travis		Travis	FM 973	FM 812 - US 183	Widen to MAD-4	2040	$16.2	Regional
168	Travis		Travis	FM 973 Relocation	US 290 - FM 973	New MAD-4/Improve to MAD-4	2020	$20.5	Local
169	Travis		Travis	FM 973 to Blake Manor Rd. Connector	FM 973 - Blake Manor Rd	New MAD-4	2020	$12.0	Local
170	Elgin		Bastrop	FM 1100	Travis County Line - SH 95	Construct MAD-4	2040	$24.2	Regional
172	Buda	Hays / TxDOT	Hays	FM 1626	0.2 miles south of Brodie Ln to FM 967	Widen to 4-lane divided	2013	$49.3	Regional
173	Hays		Hays	FM 1626	FM 967 - FM 2770	MAD-4	2015	$40.0	Regional
174	Travis		Travis	FM 1626	Manchaca Rd - 0.2 miles south of Brodie Ln	Improve to MAD-4	2018	$12.2	Regional
175	Hays		Hays	FM 1626	SH 45 SW - IH 35	MAD-6	2030	$49.8	Local
176	Travis		Travis	FM 1626	IH 35 - Manchaca Road	Widen to MAD-4	2040	$15.3	Regional
177	TxDOT	Williamson	Williamson	FM 1660	SH 29 - FM 3349	Widen from 2 lanes to 4 lanes with median	2026-2035	$82.3	Local
178	TxDOT	Williamson	Williamson	FM 1660 Realignment	800' south of CR 101 - US 79	Construct new location 2-lane roadway	2016	$32.3	Regional

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
179	Buda		Hays	FM 2001	IH 35 - SH 21	Widen to 4-lane divided	2017	$15.6	Local
180	Lockhart		Caldwell	FM 2001 Expansion / Silent Valley Rd	.14 Miles south of SH 142 - Silent Valley Rd	Northward extension of City Line Road from a point .14 miles south of SH 143 to intersect Silent Valley Road	2040	$1.2	Local
181	Travis		Travis	FM 2304 (Manchaca Rd)	FM 1626 - Ravenscroft Drive	Improve to MAD-4	2020	$12.0	Regional
182	Hays	San Marcos	Hays	FM 2439 / Hunter Rd	Bishop - RM 12/Wonder World Dr	MAD-2	2020	$3.6	Local
183	San Marcos		Hays	FM 2439 / Hunter Rd	SH 80 - Bishop	MNR-2	2020	$4.4	Local
184	Hays		Hays	FM 2439 / Hunter Rd	Centerpoint Rd - Comal County Line	MAD-4	2025	$5.2	Local
185	Buda		Hays	FM 2770	FM 1626 - Main St	Widen to 4-lane undivided	2024	$20.4	Local
186	Kyle		Hays	FM 2770	FM 1626 - FM 150	MAD-4	2025	$20.5	Local
187	Travis		Travis	FM 3238 (Hamilton Pool Rd)	east side of Pedernales River - RM 12	Improve to MAD-2	2018	$23.1	Local
188	Travis		Travis	FM 3238 (Hamilton Pool Rd)	RM 12 - SH 71 W	Improve to MAD-2	2025	$40.0	Local
189	Williamson		Williamson	FM 3405	US 183 - RM 2338	Widen from 2 lanes to 4 lanes	2015	$24.8	Local
190	Hays		Hays	RM 12	FM 150 W - Winters Mill Pkwy	MAD-2	2025	$61.0	Local
191	Hays		Hays	RM 12	FM 3237 - RM 32	MAD-2	2025	$24.5	Local
192	Hays		Hays	RM 12	Fitzhugh Rd - FM 150 W	MAD-4	2025	$5.8	Local
193	Hays		Hays	RM 12	FM 2439/Hunter Rd - SH 123	MAD-6	2025	$4.5	Local
194	Hays		Hays / Travis	RM 12	FM 3238 - Fitzhugh Rd	MAD-2	2025	$11.6	Local
195	Hays		Hays	RM 12	Winters Mill - FM 3237	MAD-2; designate as BR 12	2025	$11.7	Local
196	Hays		Hays	RM 12	RM 32 - Old RR 12/SH 80	PKWY-4	2025	$96.2	Local
197	Wimberley		Hays	RM 12 and FM 3237 Intersection Improvement	RM 12 - north and south of FM 3237 - FM 3237 - east of RM 12	Engineering, design and right-of-way purchase to add turn lanes and pedestrian crossings	2016	$0.4	Regional
198	Hays		Hays	RM 32	Comal County Line - RM 12	MAD-2	2030	$25.9	Local
199	Cedar Park	TxDOT	Williamson	RM 620	Pecan Park Blvd - Anderson Mill Road	Improve to MAD-6	2025	$25.0	Regional
200	Travis		Travis	RM 620	Anderson Mill Rd. - SH 71 W	Widen to MAD-6	2025	$52.0	Regional
201	Travis		Travis	RM 620 Bypass	620 - RR 2222	3 lanes, 2-lane west, 1 east	2020	$8.0	Local
202	Buda	TxDOT	Hays	RM 967	Goforth Rd - IH 35	Widen to 4-lane undivided	2017	$17.3	Local
203	Williamson		Williamson	RM 1431	Sam Bass - IH 35	Reconstruct and widen to 6 lane divided	2025	$39.8	Regional

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
204	Cedar Park		Williamson	RM 1431 / Whitestone Blvd Reconstruction and Widening	Cottonwood Creek Trail - Market Street	Reconstruct and widen to a six lane arterial roadway with a raised center median, turn lanes, wide outer lanes and shared use path. The project will also reconstruct and elevate the Spanish Oak Creek bridge.	-	$12.9	Regional
205	Travis		Travis	RM 1826	US 290 W - Slaughter Lane	Improve to MAD-4	2022	$7.9	Local
206	Hays		Hays	RM 1826*	SH 45 SW - Nutty Brown Rd	Improve to MAD-4	2025	$13.6	Regional
207	Travis		Travis	RM 1826*	Slaughter Lane - SH 45 SW	Improve to MAD-4	2040	$17.2	Regional
208	Hays		Hays	RM 1826	Nutty Brown - Darden Hill	MAD-4	2025	$5.8	Local
209	Hays		Hays	RM 1826	Darden Hill Rd - FM 150 (W)	MAD-4	2025	$5.8	Local
211	Travis		Travis	RM 2222	McNeil - 620 Bypass	Widen to MAD-6	2020	$12.0	Local
212	Travis		Travis	RM 2244	Walsh Tarlton - Redbud Trail	Widen to MAD-4	2020	$6.0	Local
213	Hays		Hays	RM 2325	Blanco County - Jacob's Well	MAD-2	2025	$39.6	Local
214	Hays		Hays	RM 2325	Jacob's Well - Wimberley City Limits	MAD-2	2025	$12.1	Local
215	Hays		Hays	RM 3237	RM 12 - Flite Acres Rd	MAD-2	2025	$2.8	Local
216	Hays		Hays	RM 3237	Flite Acres - Winters Mill	MAD-2	2025	$3.1	Local
217	Hays		Hays	RM 3237	Winters Mill - FM 150	MAD-2	2025	$2.1	Local
218	Round Rock	Georgetown	Williamson	A.W. Grimes Blvd	Westinghouse Road - University Boulevard	Reconstruct to a MAD-4 with sidewalks	2018	$6.7	Regional
219	Georgetown		Williamson	Airport Dr	IH 35 - Berry Creek Drive	Improve to Principal Arterial Divided; upgrade from 2-lane to 4 DIV	2025	$33.3	Local
220	Cedar Park	Travis	Travis / Williamson	Anderson Mill Rd	Zeppelin Drive - Cypress Creek Rd	Widen to MAD-4	2025	$6.0	Regional
221	Cedar Park	Williamson	Travis / Williamson	Anderson Mill Rd	RM 1431 - Lime Creek Rd	Improve roadway to MAD-4	2025	$15.0	Regional
222	Austin	Travis	Travis / Williamson	Anderson Mill Rd	Loop 1 - Grand Ave Pkwy	New MAD-4	2031	$15.2	Local
223	Austin	Travis	Travis	Arterial A	US 290 - Samsung Blvd	New MAD-4, new alignment	2020	$25.5	Regional
224	Round Rock	Williamson	Williamson	Arterial A (Kenny Fort Blvd)	Joe DiMaggio Blvd - 1000' S of US 79	Widen from 2 lanes with median to 6 lanes with median	2018	$2.9	Regional
225	Travis		Travis	Arterial B	FM 969 - Harold Green Rd	New 2-lane minor arterial	2022	$11.4	Local
226	Travis		Travis	Arterial C	FM 969 - Deaf Smith Blvd	New 2-lane minor arterial	2022	$7.1	Local
227	Round Rock		Williamson	Arterial L	Chisholm Trail Road - Mays Street	Construct new MAD-4 with sidewalks and IH 35 crossing	2035	$26.2	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
228	City of Bastrop		Bastrop	Bastrop State Park to Downtown Bastrop Multi-Use Pedestrian Connection	Bastrop State Park - Chestnut Street at Loop 150	Construct multi-use path to connect Bastrop State Park to Downtown Bastrop	-	$1.3	Regional
229	Hays		Hays	Bebee Rd	IH 35 - SH 21	Improve to MAD-2	2025	$36.6	Local
230	Travis		Travis	Bee Creek Rd	Highlands Blvd - SH 71	Improve to MAD-4	2015	$9.5	Local
231	Austin		Travis	Berkman Dr	51st St E - Manor Rd	New MND-2 and Widen to MND-2	2020	$2.9	Local
232	City of Bastrop		Bastrop	Blakely Lane Extension	Blakely Lane - Jessica Place	Plan alignment and construct extension of Blakely Lane east of Burleson Crossing to connect to Jessica Place in Riverside Grove between Hawthorne Street and Cedar Street as a curb and gutter roadway with a storm sewer system and sidewalk.	2021	$1.2	Local
233	Travis		Travis	Blake-Manor Rd	FM 973 - Taylor Ln	Improve to MAD-4	2018	$13.8	Local
234	Travis		Travis	Blake-Manor Rd	Taylor Ln - Burleson-Manor Rd	Improve to MAD-4	2030	$13.5	Local
235	Travis		Travis	Braker Ln	FM 973 - Taylor Ln	New MAD-4	2018	$20.0	Local
236	Travis		Travis	Braker Ln	FM 3177 - SH 130	New MAD-4	2025	$36.0	Local
237	Travis		Travis	Braker Ln	1 mile east of Dessau Rd - Harris Branch Pkwy	New MAD-4 / Improve Blue Goose to MAD-4	2030	$20.8	Local
238	Travis		Travis	Braker Ln	Taylor Ln - Burleson-Manor Rd	New MAD-4	2030	$12.3	Local
239	Leander	Capital Metro	Williamson	Brushy Creek Trail	Leander Station - 183A trail	Trail/Pedestrian bridge -connects rail to trail	2016	$3.3	Regional
240	Kyle		Hays	Bunton/Goforth Road	IH 35 Frontage Road - Lehman Road	Construct 3-lane road with continuous left turn lane up to 900' west of Brandi Circle. From 900' west of Brandi Circle transition to existing 2-lane roadway. Sidewalk along one side of the road.	2015	$5.0	Local
241	Kyle		Hays	Burleson Road	Miller Street - IH 35 Frontage at new connecting location	Construct 3-lane road with continuous left turn lane. Sidewalk along one side of the road.	2016	$8.8	Local
242	Travis		Travis	Burleson-Manor Rd	Blake-Manor Rd - FM 969	Widen to 4 lanes	2038	$25.5	Local
243	Travis		Travis	Burleson-Manor Rd	FM 969 - SH 71	New 2-lane minor arterial undivided	2038	$53.2	Local
244	Buda		Hays	Cabela's Dr	Main St - Manchaca Springs Rd	New 2-lane undivided	2024	$4.0	Local
245	Travis		Travis	Cameron Rd	Gregg-Manor Rd - Gregg Ln	New MAD-4 / improve to MAD-4	2017	$18.4	Local
246	Travis		Travis	Cameron Rd	Pflugerville East Rd - Gregg-Manor Rd	Widen to 4 lanes	2018	$17.6	Local
247	Hutto		Williamson	Carl Stern Blvd	FM 1660 Old - FM 1660 Relo	Construct 2-lane undivided collector	2025	$3.7	Local
248	Kyle		Hays	Center St	Old Stagecoach - FM 150	Widen to 4 lanes	2035	$7.9	Regional
249	Hays		Hays	Centerpoint Rd	RM 12 - FM 2439	New MAD-4	2025	$14.5	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
250	Hays	San Marcos	Hays	Centerpoint Rd / CR 234	IH 35 - Old Bastrop Hwy	Improve to MAD-4	2025	$3.5	Local
251	Hays	San Marcos	Hays	Centerpoint Rd / CR 234	FM 2439 - IH 35	Improve to MAD-4, dedicate right-of-way for rail road overpass	2025	$2.9	Local
252	Hays		Hays	Centerpoint Rd / CR 234	Old Bastrop - Beback Inn Rd	MAD-4	2025	$2.7	Local
253	Williamson		Williamson	Chandler Rd	SH 130 - FM 1660	Widen from 2 lanes with median to 6 lanes with median	2015	$15.3	Local
254	Lockhart		Caldwell	City Line Road	Extend City Line Rd from Clear Fork St - FM 20	Construct new roadway	2035	$7.8	Local
255	Lockhart		Caldwell	City Line Road	Extend City Line Rd south and southeast from FM 20 to and along MLK Jr Industrial Blvd - US 183	Construct new 4-lane arterial	2035	$5.6	Local
256	Lockhart		Caldwell	City Line Road	SH 142 - Clear Fork Rd	Rehab and widen to 4 lanes	2035	$3.6	Local
257	CTRMA	TxDOT	Travis	Colorado River Scenic Byway Project (US 183)	at Colorado River	Construct a bicycle and pedestrian path	2018	$4.5	Regional
258	Austin		Travis	Congress Ave	North Bluff Dr - South Boggy Creek	Improve to MAD-4	2019	$12.6	Regional
259	Williamson			CR 104 - Phase 2	Ronald Rd - SH 130	Extend the CR 104 improvements with a two-lane section with a center turn lane section to Ronald Lane and then a two-lane section with shoulders to SH 130.	2015	$5.0	Local
260	Round Rock		Williamson	CR 112	FM 1460 - Kenney Fort Boulevard	Reconstruct to a MAD-4 with sidewalks	2030	$9.0	Local
261	Hutto	Williamson	Williamson	CR 119	CR 100 - CR 164	Construct 4-lane minor arterial with a CLT	2022	$10.5	Local
262	Hutto		Williamson	CR 132	CR 134 - FM 3349	Reconstruct from a 2-lane minor arterial to a 2-lane collector	2024	$3.5	Local
263	Travis		Travis	CR 137 / Arterial A (Pflugerville)	CR 138 - Rowe Ln	Widen to 4 lanes	2030	$9.7	Local
264	Hutto		Williamson	CR 164	CR 108 - CR 119	Reconstruct from a 2-lane principal arterial undivided to a 2-lane minor arterial with a CLT	2030	$1.8	Local
265	Williamson			CR 175 Extension - Phase 2B	RM 2243 - CR 179	Reconstruction of a two-lane roadway to a four-lane divided section with a raised median.	2015	$10.0	Local
266	Lockhart		Caldwell	CR 214 / Graham Road	Connect CR 215 - US 183 via CR 214	Alternate to New Roadway 85	2035	$5.6	Local
267	Jarrell	Williamson	Williamson	CR 237	Ronald Reagan Blvd — CR 216	Reconstruct 2 lanes to 4 lanes with median	2015	$9.1	Local
268	Leander	Williamson	Williamson	CR 273 / Mel Mathis Ave	CR 272 - RM 2243	Widen from 2 lanes to 4 lanes	2020-2025	$6.6	Local
269	Jarrell	Williamson	Williamson	CR 313	Geode Ln — CR 332	Reconstruct 2 lanes to 4 lanes with median	2015	$5.7	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
270	Jarrell	Williamson	Williamson	CR 332	CR 313 — CR 3001	Reconstruct 2 lanes to 4 lanes with median	2015	$2.9	Local
271	Jarrell	Williamson	Williamson	CR 332	FM 487 — CR 313	Reconstruct 2 lanes to 4 lanes with median	2015	$6.3	Local
272	Hays	San Marcos	Hays	Craddock Ave / NF 8	N LBJ Dr. - Lime Kiln/River Ridge	MAU-4	2025	$9.8	Local
273	Round Rock		Williamson	Creek Bend Boulevard	Sam Bass Road - Brightwater Blvd	Construct a new MAD-4 with sidewalks	2017	$10.8	Local
274	Round Rock		Williamson	Creek Bend Boulevard	FM 1431 - Old Settlers Blvd	Construct a new MAD-4 with sidewalks	2035	$21.9	Local
275	Georgetown		Williamson	D.B. Wood Rd	Oak Ridge Parkway - SH 29	Improve to Principal Arterial Divided; upgrade from 2-lane to 4 DIV	2020	$19.9	Local
276	Buda	Hays	Hays	Dacy Ln	Hillside Terrace - Bebee Rd	MAU-4	2025	$11.4	Local
277	Hays	Buda	Hays	Dacy Ln / Goforth Rd	Bebee - IH 35	MAU-4	2025	$11.4	Local
278	Hays		Hays	Darden Hill Rd / CR 162	FM 150 - FM 1826	Improve to MAD-2	2025	$24.8	Local
279	Williamson	Georgetown	Williamson	DB Wood Rd	Williams Dr - Cedar Breaks Rd	Widen from 2 lanes to 4 lanes with median	2015	$8.4	Local
280	Travis		Travis	Deaf Smith Blvd	Arterial C - Northbound frontage of SH 130	New 2-lane minor arterial	2023	$9.5	Local
281	Travis		Travis	Decker Ln	Williamson County Line - Pecan St	Widen to MAD-4	2040	$39.8	Local
282	Travis		Travis	Decker Ln	Pecan St. - Wells Branch Pkwy	Widen to MAD-4	2040	$6.8	Local
283	Travis		Travis	Decker Ln	Wells Branch Pkwy - Gregg Manor Rd	New MAD-4 and Widen to MAD-4	2040	$10.6	Local
284	Round Rock		Williamson	Deepwood Drive	Sam Bass Road - RM 620	Construct new MAD-4 with sidewalks	2030	$14.4	Local
285	Travis		Travis	Dessau Rd	Northtown/Wells Branch - FM 734	Widen to 6 lanes	2038	$30.8	Local
286	Travis		Travis	Dunlap Rd.	FM 969 - S Dunlap Road	Improve to MAD-2	2023	$9.6	Local
287	Lockhart		Caldwell	E MLK Jr Industrial Blvd	Extend E MLK Jr Industrial Blvd - FM1322	New MAU-4	2040	$2.2	Local
288	Pflugerville		Travis	E Pflugerville Pkwy	Colorado Sand - Weiss Ln, SH 130 underpass	2 lane minor arterial undivided	2017	$7.3	Local
289	San Marcos		Hays	E River Ridge Pkwy	IH 35 - SH 21	MAD-4	2035	$16.8	Local
290	Hays		Hays	Elder Hill Rd / CR 170	RM 12 - FM 150	Improve to MAU-2	2025	$7.8	Local
291	Travis		Travis	Elroy Rd	Ross Rd - Fagerquist Rd	Improve to MAD-4	2017	$17.5	Local
292	Travis		Travis	Fagerquist Rd	Elroy Rd - Four Daughters Rd	Improve to MAD-4	2030	$13.1	Local
293	Travis		Travis	Ferguson Ln	Rundberg Ln - Arterial A	New MAD-4 / Improve to MAD-4	2022	$16.8	Local
294	Travis		Travis	Fitzhugh Rd	US 290 W - County Line	Improve to MAD-2	2030	$12.2	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
295	Hays		Hays	Fitzhugh Rd / CR 101	RM 12 - Travis County Line	Improve to MAU-4	2025	$5.5	Local
296	Travis		Travis	Flint Rock Road	City of Lakeway - Jack Nicklaus Drive	Widen to MAD-4	2016	$2.5	Local
297	Travis		Travis	Flint Rock Road	Jack Nicklaus Drive - Serene Hills Drive	Expand roadway to meet county standards for MNR-2	2016	$5.1	Local
298	Travis		Travis	Four Daughters Road	SH 71 E - FM 812	New MAD-4	2030	$66.0	Local
299	Travis		Travis	Frate Barker Rd	Brodie Ln - Manchaca Rd	Widen to MAD-4	2020	$8.5	Regional
300	Buda		Hays	Garison Road	Main St. - Manchaca Springs Rd.	Reconstruct/extend 2-lane undivided with sidewalks	2025	$6.5	Local
301	Buda		Hays	Garlic Creek Dr (new N/S)	SH 45 - RM 967	New 4-lane divided	2025	$26.8	Local
302	Round Rock		Williamson	Gattis School Road	Greenlawn Boulevard - A.W. Grimes	Reconstruct to a MAD-6 with sidewalks	2025	$11.8	Local
303	Round Rock		Williamson	Gattis School Road	A.W. Grimes - Deepwood Drive	Reconstruct to a MAD-6 with sidewalks	2025	$10.3	Local
304	Round Rock		Williamson	Gattis School Road	Deepwood Drive - Kenney Fort Boulevard	Reconstruct to a MAD-6 with sidewalks	2030	$27.0	Local
305	Round Rock		Williamson	Gattis School Road	Mays Street - Greenlawn Boulevard	Reconstruct to a MAD-6 with sidewalks	2035	$32.8	Local
306	Round Rock		Williamson	Gattis School Road	Kenney Fort Boulevard - Red Bud Lane	Reconstruct to a MAD-6 with sidewalks	2035	$26.2	Local
307	Georgetown	Williamson	Williamson	Georgetown Inner Loop (Phase I)	IH 35 N - IH 35 S	Widen from 2 lanes to 4 lanes with median	2015	$29.6	Local
308	Kyle		Hays	Goforth Road	Brent Boulevard - Bunton Creek Road	Construct 4-lane road. Sidewalk along one side of the road.	2016	$10.1	Local
309	Kyle		Hays	Goforth Road	IH 35 Frontage Road - Brent Boulevard	Construct 3-lane road with continuous left turn lane. Sidewalk along one side of the road.	2016	$10.1	Local
310	Travis		Travis	Grand Ave Pkwy	Greenlawn Blvd - Bratton Lane	New MAD-4 / Improve to MAD-4	2030	$4.5	Local
311	Travis		Travis	Greenlawn Blvd	IH 35 N - Anderson Mill Rd	New MAD-4 and widen to MAD-4	2040	$5.4	Local
312	Travis		Travis	Gregg-Manor Rd	SH 130 - US 290 E	New MAD-4 / improve to MAD-4	2030	$24.9	Local
313	Austin		Travis	Grove Blvd	Montopolis - Hogan Ave	New MAD-4	2019	$7.6	Local
314	Williamson	Cedar Park	Williamson	Gupton Way Dr	Park Street - Brushy Creek	Widen to 4 lanes	2018	$4.4	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
315	City of Bastrop		Bastrop	Hasler Boulevard	Marie Street - Hwy 304	Plan alignment and construct extension of Hasler Boulevard west of Marie Street to connect to Hwy 304 at Hunters Point Drive. Curb and gutter roadway with sidewalk. Collector Street 45 feet wide (FOC-FOC), approximately 5,800 LF. Shown as a Future Major Collector.	2019	$2.9	Local
316	Pflugerville		Travis	Heatherwilde Blvd / Wilke Ln	SH 45 - Wilke Ln	MAD-4	2014	$8.3	Local
317	Leander		Williamson	Hero Way	CR 270 - Ronald Reagan Blvd	Construct 4-lane minor arterial divided with sidewalks on both sides	2020	$8.5	Local
318	Travis		Travis	Hewitt Ln	Frate Barker Rd - FM 1626	Improve to MNR-4	2020	$5.5	Local
319	Travis		Travis	Hidden Lake Blvd	Kelly Ln - Pflugerville Rd	New MAD-4	2025	$18.1	Local
320	Buda	Hays	Hays	Hillside Terrace	IH 35 - Old Goforth Rd.	Widen to 4-lane divided, add sidewalks	2020	$3.6	Local
321	Buda	Hays	Hays	Hillside Terrace	Old Goforth Rd - FM 2001	Widen to 4-lane divided, add sidewalks	2020	$6.4	Local
322	Travis		Travis	Hodde Ln	Rowe Ln - Cele Rd	Improve to MAD-4	2038	$18.7	Local
323	San Marcos		Hays	Hopkins Multi-use Bike / Ped Facility	CM Allen Pkwy - Thorpe Rd	Construct multi-use bike/ped. facility from IH 35 to Downtown Center. Construct multi-use bike/ped. facility that connects existing cross town hike and bike trails to existing facilities. Construct pedestrian crossing from City Hall to Public Library. Construct pedestrian crossing at Riverside Street. and Hopkins Street.	-	$2.5	Regional
324	San Marcos		Hays	Hopkins Street Reconstruction	Moore Street - Bishop Street	Reconstruct Hopkins Street from Moore Street to Bishop Street to the City's Complete Street policy. Reconstruct the street, multi-use path, sidewalks, curb and gutter. The project will connect the Heritage Historical District with the City's Downtown Center. Construct traffic calming measures such as narrow lanes to create a walkable neighborhood.	-	$9.0	Regional
325	Travis		Travis	Howard Ln	Cameron Rd - SH 130	New MAD-4	2016	$19.0	Local
326	Austin	Travis	Travis	Howard Ln	McNeil Rd - Loop 1 N	Improve to MAD-6	2030	$18.6	Local
327	Austin	Williamson	Williamson	Howard Ln	SH 45/RM 620 - McNeil Rd	New MAD-6	2030	$22.7	Local
328	Hays		Hays	Jacobs Well Rd / NF 25	FM 2325 - Wayside Dr	New MAU-2	2025	$13.8	Local
329	Travis		Travis	Jake's Hill Rd	Rowe Ln - Kelly Ln	New MAD-4	2030	$15.7	Local
330	Travis		Travis	Jesse Bohls Rd	Weiss Ln - Cameron Rd	New MAD-4 / Improve to MAD-4	2023	$23.9	Local
331	Pflugerville		Travis	Kelly Ln	Moorlynch Ave - Weiss Ln	Widen to 4-lane divided major arterial with bicycle and pedestrian accommodations	2015	$7.7	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
332	Travis		Travis	Kelly Ln	Weiss Lane - FM 973	New MAD-4 and Widen to MAD-4	2040	$25.1	Local
333	Round Rock		Williamson	Kenney Fort Boulevard Segment 2	Forest Creek Drive - Gattis School Road	Construct new MAD-6 with sidewalks and shared use path	2018	$8.4	Local
334	Round Rock		Williamson	Kenney Fort Boulevard Segment 3	Gattis School Road - SH 45	Construct new MAD-6 with sidewalks and shared use path	2018	$8.4	Local
335	Round Rock		Williamson	Kenney Fort Boulevard Segment 4	Old Settlers Blvd - Chandler Creek Drive	Construct new MAD-4 with sidewalks and shared use path	2025	$9.6	Local
336	Round Rock		Williamson	Kenney Fort Boulevard Segment 5	CR 112 - Old Settlers Blvd	Construct new MAD-4 with sidewalks and shared use path	2025	$10.3	Local
337	Round Rock		Williamson	Kenney Fort Boulevard Segment 6	University Boulevard - CR 112	Construct new MAD-4 with sidewalks and shared use path	2030	$12.6	Local
338	Hays		Hays	Kohlers Xing	FM 2770 - IH 35	New MAD-4	2025	$5.5	Local
339	Hays	Kyle	Hays	Kyle Loop W	NF 17 - Old Stagecoach Rd	MAD-4	2025	$15.5	Local
340	Hays	Kyle	Hays	Kyle Loop W	Old Stagecoach Rd - IH 35	MAD-4	2025	$4.1	Local
341	Hays		Hays	Kyle Loop W	FM 1626 - NF 17	MAD 5	2025	$10.0	Local
342	Kyle		Hays	Kyle Marketplace Frontage Road Reliever	North Burleson Street, east of the Union Pacific RR - City Lights Drive	Construct 3-lane road. Sidewalk along one side of the road.	2016	$4.1	Local
343	Hays	Kyle	Hays	Kyle Parkway	IH 35 at FM 1626 - SH 21	MAD-4	2030	$15.8	Local
344	Kyle		Hays	Lehman Road	E RR 150 - Goforth Road	Construct 2-lane road with dedicated left turn lanes at cross streets and widen to 4 lanes at the Goforth Rd. intersection. Sidewalk along one side of the road.	2016	$8.3	Local
345	Travis		Travis	Lohman Ford Rd	FM 1431 - Sylvester Ford Rd	Widen to MAD-4	2040	$28.5	Local
346	Travis		Travis	Lohman Ford Rd	Sylvester Ford Rd - Point Venture	Widen to MNR-4	2040	$16.6	Local
347	Austin		Williamson	Lyndhurst	Lakeline Blvd - SH 45/RM 620	New MND-4	2020	$4.6	Local
348	Travis		Travis	Maha Loop Rd	SH 71 - Pearce Ln (Phase 1)	New MAD-2	2016	$15.0	Local
349	Travis		Travis	Maha Loop Rd	SH 71 - Pearce Ln (Phase 2)	Improve to MAD-4	2025	$12.0	Local
350	Travis		Travis	Maha Loop Rd	Pearce Ln - FM 812	New MAD-4/Improve to MAD-4	2030	$37.6	Local
351	Travis		Travis	Maha Loop Rd	FM 812 - Slaughter Ln (Moore Rd)	New MAD-4 and Widen to MAD-4	2040	$7.1	Local
352	Travis		Travis	Maha Loop Rd	Slaughter Ln (Moore Rd) - Maha Loop Rd	New MAD-4 and Widen to MAD-4	2040	$15.1	Local
353	Buda		Hays	Main St	Sequoyah St	Traffic signal warrant and potential signal	2018	$0.1	Local
354	Buda		Hays	Main St	IH 35 - Turnersville Rd	New 4-lane divided	2020	$31.7	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
355	Buda		Hays	Main St	IH 35 - Firecracker Dr	Widen to 6-lane divided	2025	$2.4	Local
356	Buda		Hays	Main St	Cabela's Dr - IH 35	Widen to 6-lane divided	2027	$1.2	Local
357	Buda	Hays	Hays	Manchaca Springs Rd	RM 967 - IH 35 at Turnersville	New 4-lane divided	2025	$61.1	Local
358	Hays	Kyle	Hays	Marketplace Ave	FM 967 - IH 35 at Burleson Rd	New MAD-4	2025	$6.5	Local
359	Round Rock	Georgetown	Williamson	Mays Street	Westinghouse Road - Teravista Drive	Construct new MAD-4 with sidewalks	2017	$8.6	Local
360	Williamson	Round Rock	Williamson	Mays Street	University Boulevard - Paloma Drive	Reconstruct/Construct new MAD-4 with sidewalks	2025	$22.2	Local
361	Hays	San Marcos	Hays	McCarty Ln / CR 233	FM 2439/Hunter Rd - IH 35	Improve to MAD-4	2035	$2.3	Regional
362	Travis		Travis	McKinney Falls Pkwy	William Cannon Dr - Slaughter Ln	New MAD-4 and widen to MAD-4	2020	$5.9	Local
363	Travis		Travis	McKinney Falls Pkwy (Palmer Rd)	SH 45 - Turnersville Rd	Widen to MAD-4	2030	$4.0	Local
364	Austin	Travis	Travis	McNeil Dr	US 183 - Howard Ln	Widen to 6 lanes	2030	$29.3	Regional
365	Austin	Williamson	Travis	McNeil Rd	700' north of SH 45 - McNeil Dr/Howard Ln	Improve to MAD-6	2030	$26.1	Regional
366	Travis		Travis	Melber Ln	Kelly Ln - Cameron Rd	New MAD-4	2038	$33.7	Local
367	City of Bastrop		Bastrop	Mesquite Street	Mesquite Street - Reids Bend (CR 41)	Re-construct Mesquite Street west to connect to Reids Bend (CR 41)	2025	$2.9	Local
368	Travis		Travis	Moore Rd (Slaughter)	FM 973 - Maha Loop Rd	Improve to MAD-4	2030	$25.0	Local
369	Lockhart		Caldwell	N Mockingbird Lane	Extend Mockingbird Ln - Silent Valley Rd.	New MAU-4	2040	$10.8	Local
370	Lockhart		Caldwell	New Roadway 30	US 183 at Westwood Dr and FM 86 as alternative to FM 1322 in flood events	Proposed alternative to FM 1322	2035	$11.7	Local
371	Lockhart		Caldwell	New Roadway 34	FM 1322 - CR 203	Construct new roadway	2035	$3.8	Local
372	Lockhart		Caldwell	New Roadway 46	CR 215 - CR 213/Robin Ranch Rd	Construct new roadway	2035	$3.5	Local
373	Lockhart		Caldwell	New Roadway 47	CR 221 - SH 130 at Plum Creek U-turn bridge	Construct new roadway	2035	$10.9	Local
374	Hays	Dripping Springs	Hays	NF 2 (Dripping Springs)	US 290 W - US 290 Bypass	MAU-4	2025	$8.3	Local
375	Hays	San Marcos / Comal County	Hays	NF 6 (San Marcos)	RM 12 - FM 1102	New MAD-4	2025	$18.3	Local
376	Hays	Dripping Springs	Hays	NF 10 (Dripping Springs)	RM 12 - US 290 SE Bypass	MAU-4	2025	$3.0	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
377	Hays		Hays	NF 12 (Driftwood)	Elder Hill Rd - FM 150 at RM 1826	New MAD-2	2025	$15.3	Local
378	Hays	Dripping Springs	Hays	NF 18 / Roger Hanks Ext.	US 290 W - RM 12	New MAD-2	2025	$5.1	Local
379	Georgetown		Williamson	North and South Austin Avenue Bridges	2nd Street - Morrow Street	Reconstruct the North and South Austin Avenue Bridges	-	$7.1	Regional
380	Georgetown		Williamson	Northwest Blvd Extension	Fontana Drive - Spur 152 (Austin Ave)	Construct new bridge over IH 35 - Principal Arterial Divided	2018	$10.0	Local
381	Hays		Hays	Nutty Brown Rd / CR 163	US 290 - RM 1826	Improve to MAD-4	2025	$8.6	Local
382	Leander		Williamson	Old 2243	Broad St - Bagdad Rd	Construct 4-lane minor arterial undivided - engineering underway	2015	$5.8	Local
383	Leander		Williamson	Old 2243	Bagdad Rd - Lakeline	Construct 4-lane minor arterial undivided - engineering underway	2017	$4.9	Local
384	Buda	Hays	Hays	Old FM 2001	FM 2001 - Old Goforth Rd.	Reconstruct with TWLTL and sidewalks	2018	$1.8	Regional
385	Travis		Travis	Old Kimbro Rd	US 290 E - Littig Rd	Improve to MAD-4	2021	$12.8	Local
386	Round Rock		Williamson	Old Settlers Boulevard	Sam Bass Road - Chisholm Trail Road	Widen to a MAD-4 with sidewalks	2018	$4.4	Regional
387	Kyle		Hays	Old Stagecoach	Post Rd - FM 150	MAU-2	2025	$13.7	Local
388	Travis		Travis	Palmer Rd	FM 1327 - SH 45	Improve to MAD-4	2030	$5.2	Local
389	Travis		Travis	Parmer Lane	US 290 E - Braker	New MAD-4	2016	$14.7	Local
390	Travis		Travis	Parsons Rd	Littig Rd - Lockwood Rd	New MAD-4 / Improve to MAD-4	2021	$18.7	Local
391	Travis		Travis	Pearce Ln	FM 973 - Maha Loop Rd	Improve to MAD-4	2024	$28.9	Local
392	Travis		Travis	Pearce Ln	Maha Loop Rd - Wolf Ln	Improve to MAD-4	2030	$28.8	Local
393	Austin		Williamson	Pearson Ranch Rd	Avery Ranch Blvd - SH 45/ RM 620	New MAD-4	2020	$11.3	Local
394	Pflugerville		Travis	Pflugerville East Rd (Pecan Street)	SH 130 - Weiss Ln	MAD-2	2015	$4.6	Local
395	Travis		Travis	Pflugerville Rd	Weiss Ln - Cameron Rd	Widen to 4 lanes	2023	$3.2	Local
396	Austin	Travis	Travis	Pleasant Valley Rd	Onion Creek Dr - CR 105/ Turnersville Rd	New MAD-4 / Improve to MAD-4	2030	$46.7	Local
397	Austin		Travis	Pleasant Valley Rd	Existing Pleasant Valley Rd - SH 71	New MAD-4	2030	$4.0	Regional
398	Hays	San Marcos	Hays	Posey Rd / CR 235	FM 2439 - IH 35	Improve to MAD-4	2025	$1.5	Local
399	Hays		Hays	Posey Rd / CR 235	IH 35 - Old Bastrop Hwy	Improve to MAD-4	2025	$2.5	Local
400	Hays	San Marcos	Hays	Post Rd / CR 140	IH 35 - Aquarena Springs Rd	Improve to MAU-4	2035	$17.4	Regional

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
401	Travis		Travis	Puryear Rd	1 mile west of IH 35 - IH 35	New MAD-6	2038	$10.5	Local
402	Georgetown		Williamson	Rabbit Hill / Mays Street Ext	Terra Vista Parkway - Westinghouse	Construct new principal arterial divided	2016	$8.3	Local
403	Round Rock		Williamson	Red Bud Lane	CR 117 - US 79	Reconstruct to a MAD-4 with sidewalks	2030	$18.0	Local
404	Round Rock		Williamson	Red Bud Lane	US 79 - Forest Creek Drive	Reconstruct to a MAD-4 with sidewalks	2035	$17.5	Local
405	Round Rock		Williamson	Red Bud Lane	Forest Creek Drive - Gattis School Road	Reconstruct to a MAD-4 with sidewalks	2035	$17.5	Local
406	Travis		Travis	Reimers Peacock	SH 71 - Hamilton Pool Rd	New 2-lane minor arterial undivided	2019	$10.0	Local
407	San Marcos		Hays	River Ridge Pkwy	Lime Kiln Rd - Post Rd	MAU-2	2025	$10.2	Local
408	San Marcos		Hays	River Ridge Pkwy	Post Rd - IH 35	MAD-4	2025	$8.6	Local
409	San Marcos		Hays	River Road RR Overpass & Road	Wal-Mart - Aquarena Springs Dr	Construct RR overpass to replace existing underpass and construct 4-lane se	2015	$14.0	Local
410	Buda	Hays / TxDOT	Hays	Robert Light Blvd	FM 2770 - Main St/FM 967	New 4-lane divided with railroad overpass	2015	$16.8	Regional
411	Buda	Hays / TxDOT	Hays	Robert Light Blvd	FM 1626 - FM 2770	New 4-lane divided	2018	$27.1	Regional
412	Hays		Hays	Robert S. Light Blvd. Phase 1 Interim	FM 1626 - FM 967	Construct new MAD-2 with RR overpass	2020	$13.1	Local
413	Hays		Hays	Robert S. Light Blvd. Phase 2 Ultimate	FM 1626 - FM 967	MAD-4	2025	$18.8	Local
414	Williamson		Williamson	Ronald Reagan Blvd	at IH 35	Construct new 6-lane Overpass	2040	$23.2	Regional
415	Travis		Travis	Ross Rd	SH 71 - Elroy Rd	Widen to 4 lanes	2038	$29.7	Local
416	Travis		Travis	Ross Rd	Elroy Rd - McAngus	New 2-lane minor arterial divided	2038	$5.5	Local
417	Pflugerville		Travis	Rowe Ln	SH 130 - CR 137	2 lane minor arterial undivided	2017	$1.3	Local
418	Travis		Travis	Rowe Ln	City of Pflugerville - Hodde Ln	Widen to MAD-4	2040	$17.3	Local
419	Travis		Travis	Rowe Ln	Hodde Ln - Decker Ln	New MAD-4 and Widen to MAD-4	2040	$15.2	Local
420	Austin		Travis	Rundberg Ln	FM 1325 - Metric Blvd	New MAD-2	2021	$2.1	Regional
422	Round Rock		Williamson	Sam Bass Rd	Old Settlers Blvd - Creek Bend Blvd	Widen to a MAD-2 with sidewalks	2030	$13.5	Local
423	Round Rock		Williamson	Sam Bass Rd	Creek Bend Blvd - Meadows Drive	Widen to a MAD-2 with sidewalks	2030	$27.0	Local
424	Leander	Williamson	Williamson	San Gabriel Blvd	CR 270 - Ronald Reagan Blvd	Construct 4-lane minor arterial divided - original Williamson County alignment	2018	$9.8	Local
425	Leander	Williamson	Williamson	San Gabriel Pkwy W	Nameless/FM 2243 - Bagdad Rd	Construct 4-lane road with median on a new location.	2014	$41.1	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
426	Lockhart		Caldwell	San Jacinto Street	FM 20 - MLK Jr Industrial Blvd	Construct new roadway	2035	$3.3	Local
427	Hays		Hays	Sawyer Ranch Rd / CR 164	US 290 - Darden Hill Rd	Improve to MAD-4	2025	$7.7	Local
428	Georgetown		Williamson	SE Inner Loop	IH 35 - Sam Houston	Improve to Principal Arterial Divided, widen to 4 lanes from 2 in Freeway ROW (Continuation of SW Bypass/Sam Houston)	2030	$36.0	Local
429	Hays	Buda / Kyle	Hays	Shadow Creek Blvd	Hillside Terrace - Bebee Rd	New MAD-2	2035	$35.9	Local
430	Williamson	Georgetown	Williamson	Shell Rd	SH 195 - Williams Dr	Widen from 2 lanes to 4 lanes with median	2014	$17.3	Local
431	Travis		Travis	Slaughter Ln	Pleasant Valley Rd - McKinney Falls Pkwy	New MAD-4	2020	$16.1	Local
432	Travis		Travis	Slaughter Ln	McKinney Falls Pkwy - FM 973	New MAD-4	2030	$32.5	Local
433	Georgetown		Williamson	Southwest Bypass	SH 29 - RR 2243 (Leander Road)	New Principal Arterial Divided - 2-lane construction in freeway ROW	2020	$22.1	Local
434	Travis		Travis	Taylor Ln	Lockwood Rd - FM 969	Improve to MAD-4	2038	$39.2	Local
435	Travis		Travis	Thaxton Rd	Slaughter Lane - FM 1327	Improve to MAD-4	2025	$36.5	Local
436	Hays		Hays	Turnersville Rd Extension	SH 45 SE - FM 2001	New MAD-4	2025	$11.3	Local
437	Hays		Hays	Turnersville Rd Extension	FM 2001 - FM 110	MAD-6	2025	$15.5	Local
438	Round Rock	Williamson	Williamson	University Boulevard	IH 35 - Sunrise Road	Reconstruct to a MAD-6 with sidewalks and shared use path	2017	$10.8	Local
439	Round Rock		Williamson	University Boulevard	FM 1460 - Kenney Fort Boulevard	Reconstruct to a MAD-4 with sidewalks	2030	$18.0	Local
440	Round Rock		Williamson	University Boulevard	Kenney Fort Boulevard - CR 110	Reconstruct to a MAD-4 with sidewalks	2030	$12.6	Local
441	Round Rock		Williamson	University Boulevard	Sunrise Road - FM 1460	Reconstruct to a MAD-6 with sidewalks and shared use path	2035	$43.8	Local
442	Pflugerville	Travis	Travis	Weiss	Cele Rd - Kelly Ln	2 lane minor arterial undivided	2017	$3.7	Local
443	Travis	Pflugerville	Travis	Weiss Ln	Cele Rd - Cameron Rd	New MAD-4 / Improve to MAD-4	2030	$36.7	Local
444	Travis		Travis	Wells Branch Pkwy	Immanuel - Cameron	New MAD-4 / Improve to MAD-4	2020	$10.0	Local
445	Travis		Travis	Wells Branch Pkwy	Cameron - SH 130	New MAD-4	2023	$7.4	Local
446	Travis		Travis	Wells Branch Pkwy	SH 130 - Fuchs Grove Rd	New MAD-4	2030	$17.8	Local
447	Austin		Travis	Westgate Blvd	Cohoba Dr - Cameron Loop	New MAD-4	2020	$4.0	Local
448	Georgetown		Williamson	Westinghouse Road	IH 35 - FM 1460	Improve to Principal Arterial Divided, widen from 4 lanes to 6 lanes	2020	$23.1	Local
449	Travis		Travis	Wild Horse Connector	FM 973 - Parmer LN	New MAD-4	2019	$16.0	Regional

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
450	Austin		Travis	William Cannon Dr	Running Water Dr - McKinney Falls Pkwy	Improve to MAD-4	2018	$7.4	Local
451	Travis		Travis	William Cannon Dr	McKinney Falls Pkwy - US 183 S	New MAD-4	2018	$9.5	Local
452	Austin		Travis	William Cannon Dr	Pleasant Valley Rd - .5 miles east	Widen to MAD-6	2020	$8.6	Local
453	Travis		Travis	William Cannon Dr / FM 812	US 183 S - FM 812	New MAD-4	2038	$15.8	Local
454	Hays		Hays	Windy Hill Rd	IH 35 - Turnersville Rd extension	Improve to MAD-2	2025	$24.1	Local
455	Hays		Hays	Winter's Mill Parkway	RM 12 - FM 3237	MAU-4	2025	$3.9	Local
456	Georgetown		Williamson	Wolf Ranch Parkway	SH 29 - SW Bypass	Construct new collector undivided	2020	$4.2	Local
457	Round Rock		Williamson	Wyoming Springs Drive	Sam Bass Road - Brightwater	Construct new MAD-4 with sidewalks and shared use path	2035	$27.3	Local
458	Hays		Hays	Yarrington Rd / CR 159	FM 110 - SH 21	Improve to MAD-4	2025	$7.9	Local
459	Austin		Travis	Arterial Street Improvement Program	-	-	-	$2,647.4	Local
460	Bastrop County		Bastrop	Arterial Street Improvement Program	-	-	-	$5.1	Local
461	Bee Cave		Travis	Arterial Street Improvement Program	-	-	-	$4.5	Local
462	Buda		Hays	Arterial Street Improvement Program	-	-	-	$0.7	Local
463	Burnet County		Burnet	Arterial Street Improvement Program	-	-	-	$87.7	Local
464	Caldwell		Caldwell	Arterial Street Improvement Program	-	-	-	$8.9	Local
465	Cedar Park		Williamson	Arterial Street Improvement Program	-	-	-	$169.8	Local
466	City of Bastrop		Bastrop	Arterial Street Improvement Program	-	-	-	$25.9	Local
467	City of Burnet		Burnet	Arterial Street Improvement Program	-	-	-	$11.8	Local
468	Elgin		Travis / Bastrop	Arterial Street Improvement Program	-	-	-	$4.5	Local

Road Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
469	Georgetown		Williamson	Arterial Street Improvement Program	-	-	-	$2.0	Local
470	Hays		Hays	Arterial Street Improvement Program	-	-	-	$13.6	Local
471	Hutto		Williamson	Arterial Street Improvement Program	-	-	-	$0.7	Local
472	Kyle		Hays	Arterial Street Improvement Program	-	-	-	$23.7	Local
473	Lakeway		Travis	Arterial Street Improvement Program	-	-	-	$14.6	Local
474	Leander		Williamson	Arterial Street Improvement Program	-	-	-	$68.7	Local
475	Lockhart		Caldwell	Arterial Street Improvement Program	-	-	-	$6.6	Local
476	Manor		Travis	Arterial Street Improvement Program	-	-	-	$7.9	Local
477	Marble Falls		Burnet	Arterial Street Improvement Program	-	-	-	$12.0	Local
478	Pflugerville		Travis	Arterial Street Improvement Program	-	-	-	$216.4	Local
479	Round Rock		Williamson	Arterial Street Improvement Program	-	-	-	$2.3	Local
480	San Marcos		Hays	Arterial Street Improvement Program	-	-	-	$677.2	Local
481	Smithville		Bastrop	Arterial Street Improvement Program	-	-	-	$4.6	Local
482	Taylor		Williamson	Arterial Street Improvement Program	-	-	-	$89.7	Local
483	Travis		Travis	Arterial Street Improvement Program	-	-	-	$95.9	Local
484	Westlake Hills		Travis	Arterial Street Improvement Program	-	-	-	$20.5	Local
485	Williamson		Williamson	Arterial Street Improvement Program	-	-	-	$1,904.9	Local

Table 33: Transit Projects

This is a list of the transit projects in the fiscally constrained portion of the *CAMPO 2040 Regional Transportation Plan*. These projects are expected to be funded between 2015 and 2040. This list includes rural and urban transit projects.

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
1	Capital Metro		CMTA	1035-Georgetown/Round Rock	Georgetown - Downtown	Implement Express Bus Service	2016	$4.1	Regional
2	Capital Metro		Travis / Williamson	130/Dessau/MOKAN	Hutto - Downtown Austin	Express Bus with dedicated lane	2021	$103.7	Regional
3	Capital Metro		Travis	360-Loop 360	Gracy Farms-Ben White	Implement Express Bus Service	2035	$6.7	Regional
4	Capital Metro		CMTA	901-South Mopac	Slaughter Ln to MLK Blvd	Implement Express Bus Service	2020	$2.0	Regional
5	Capital Metro		CMTA	922-Four Points	RM 620 to MLK Blvd	Implement Express Bus Service	2020	$2.5	Regional
6	Capital Metro		Travis	Additional Core BRT	Central Austin	MetroRapid Line 4 - Placeholder for add'l BRT	2025	$30.0	Regional
7	Capital Metro		Travis	Additional Core BRT	Central Austin	MetroRapid Line 5 - Placeholder for add'l BRT	2025	$19.0	Regional
8	Capital Metro		Travis	Bee Cave Park and Ride	Intermodal Facility	Construct transit center/park and ride.	2021	$3.7	Regional
9	CARTS		Bastrop / Travis	BRT Service - Bastrop Bus Rapid Transit	Bastrop to Austin	Implement Bus Rapid Service **Possible CMTA project	2027	$6.4	Regional
10	Capital Metro		Hays	Buda Intermodal Station	Intermodal Facility	Construct transit center/park and ride.	2025	$7.4	Regional
11	Capital Metro		Travis	Burnet/S. Lamar - BRT	Westgate - Domain	Bus Rapid Transit enhancements/upgrade	2020	$211.6	Regional
12	CARTS		CARTS	Capital/Technology - Digital Network Upgrade	CARTS Service Area	Upgrade digital network for data and voice system-wide (replacing radios, etc.)	2018	$1.4	Regional
13	CARTS		CARTS	Capital/Technology - Smart Bus Transit Technology	CARTS Service Area	Complete on-time bus arrival technology projects; CARTS Interurban, Metro & fixed routes	2016	$0.1	Regional
14	CARTS		Hays	Capital/Technology - Smart Bus Transit Technology	San Marcos	On-time bus arrival technology for San Marcos; procurement to begin Fall 2014	2016	$0.1	Regional
15	Capital Metro		Travis	CBD/E. Riverside/ABIA BRT	CBD-ABIA	MetroRapid Line 3 - with dedicated lane	2020	$138.8	Regional
16	Capital Metro		Travis	Cedar Park Intermodal Station	-	Construct transit center/park and ride	2020	$6.0	Regional
17	Capital Metro	Austin	Travis	Central Corridor	Central Austin	Future high capacity transit	2025	$498.8	Regional
18	Capital Metro		CMTA	Decker / Springdale	Flex Route	New route	2015	$0.2	Regional
19	Capital Metro		Travis / Williamson	Domain to Georgetown	Domain - Georgetown	MetroRapid	2025	$56.4	Regional
20	Capital Metro		CMTA	Downtown Transit Center Phase 1	Capital Metro Service Area	Replace/Add off-street transit center in service area	2017	$0.4	Regional
21	Capital Metro		CMTA	Downtown Transit Center Phase 2	Capital Metro Service Area	Replace/Add off-street transit center in service area	2018	$2.8	Regional
22	Capital Metro		CMTA	Downtown Transit Center Phase 3	Capital Metro Service Area	Replace/Add off-street transit center in service area	2020	$18.2	Regional
23	Capital Metro		Travis	Express Bus on Express Lanes	MoPac/183	Express Bus	2020	$6.0	Regional
24	Buda	Hays	Hays	Express Bus Service	-	CARTS to begin new service	2020	$3.4	Regional
25	CARTS		Travis	Facility - Southeast Austin Facility	Tucker Hill Lane, Garfield	Build out 7-phase project at CARTS Tucker Hill Lane Campus	2018	$10.4	Regional

Transit Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
26	CARTS		Bastrop	Fixed Routes - Bastrop County Interurban Routes	Bastrop County	Implement a series of fixed routes to connect cities in Bastrop County	2029	$5.1	Regional
27	CARTS		Burnet	Fixed Routes - Burnet County Interurban Routes	Burnet County	Implement a series of fixed routes to connect cities in Burnet County	2029	$5.1	Regional
28	CARTS		Caldwell	Fixed Routes - Caldwell County Interurban Routes	Caldwell County	Implement a series of fixed routes to connect cities in Caldwell County	2029	$5.1	Regional
29	Capital Metro		Williamson	FM 1431 / Univ. Blvd. RR to Cedar Park Connect	Round Rock - Cedar Park	Connect Bus	2018	$1.6	Regional
30	Capital Metro		Travis / Williamson	Georgetown/RR/Austin Express Bus	Georgetown - Downtown Austin	Express Bus	2016	$4.1	Regional
31	Capital Metro		Travis / Bastrop	Green Line	MoKan - Elgin	Commuter Rail	2025	$586.9	Regional
32	Capital Metro		Williamson	Hutto to Round Rock Connect	Hutto - Round Rock	Connect Bus	2018	$1.3	Regional
33	Capital Metro		Travis / Hays / Williamson	IH-35 Express Bus in Express Lanes	North - South	Express Bus - Assumes construction of bus only ramps between P&Rs and express lanes	2030	$36.0	Regional
34	CARTS		Hays	Intercity/Express Bus - Dripping Springs to San Marcos	Dripping Springs to San Marcos	Implement Express Bus Service	2025	$4.4	Regional
35	CARTS		Travis / Williamson	Intercity/Express Bus - Jarrell Express	Jarrell to Tech Ridge Park and Ride	Implement Express Bus Service	2035	$4.3	Regional
36	CARTS		Williamson	Intercity/Express Bus - Liberty Hill Express	Liberty Hill to Leander	Implement Express Bus Service	2035	$4.3	Regional
37	CARTS		Caldwell / Travis	Intercity/Express Bus - Lockhart Express	Lockhart to Austin	Express Bus Service to Lockhart	2035	$6.5	Regional
38	CARTS		Caldwell / Hays	Intercity/Express Bus - Lockhart-San Marcos Express	Lockhart to San Marcos	Implement Express Bus Service	2035	$4.3	Regional
39	CARTS		Caldwell	Intercity/Express Bus - Luling Express	Luling to Lockhart	Implement Express Bus Service	2023	$1.3	Regional
40	CARTS		Caldwell / Hays	Intercity/Express Bus - Luling to San Marcos	Luling to San Marcos	Implement Express Bus Service	2030	$3.6	Regional
41	CARTS		Travis / Burnet	Intercity/Express Bus - Marble Falls to Austin	Marble Falls to Austin	Implement Express Bus Service	2035	$4.3	Regional
42	CARTS		Bastrop	Intercity/Express Bus - Smithville Express	Smithville to Bastrop	Implement Express Bus Service	2035	$4.3	Regional
43	CARTS		Bastrop	Intermodal Facility - Bastrop Park & Ride	Bastrop	Construct transit center/park and ride **Possible joint facility with Capital Metro	2027	$6.4	Regional
44	CARTS		Burnet	Intermodal Facility - Bertram Intermodal Facility	Bertram	Construct intermodal transit facility	2040	$1.9	Regional
45	CARTS		Burnet	Intermodal Facility - Burnet Station	Burnet	Construct transit center/park and ride	2030	$2.7	Regional
46	CARTS		Travis	Intermodal Facility - Elgin Transit Center	Elgin	Build intermodal facility, including park and ride, in the City of Elgin	2020	$3.6	Regional

Transit Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
47	CARTS		Williamson	Intermodal Facility - Jarrell Intermodal Station	Jarrell	Construct transit center/park and ride.	2035	$2.1	Regional
48	CARTS		Williamson	Intermodal Facility - Liberty Hill Park & Ride	Liberty Hill	Construct transit center/park and ride	2035	$3.2	Regional
49	CARTS		Caldwell	Intermodal Facility - Lockhart Park & Ride	Lockhart	Construct transit center/park and ride **Will more than likely be a CMTA project	2035	$8.7	Regional
50	CARTS		Caldwell	Intermodal Facility - Lockhart/Luling Transit Center	Lockhart/Luling	Construct intermodal facility to serve Lockhart/Luling area.	2021	$0.9	Regional
51	CARTS		Burnet	Intermodal Facility - Marble Falls Station	Marble Falls	Upgrades to the current transit facility in Marble Falls to meet with ADA compliance. Construction should be completed in late Fall 2014.	2015	$0.05	Regional
52	CARTS		Hays	Intermodal Facility - San Marcos Station	San Marcos	Expand parking behind San Marcos Station for passengers; expand the maintenance facility at San Marcos.	2018	$1.3	Regional
53	CARTS		Bastrop	Intermodal Facility - Smithville Intermodal Station	Smithville	Construct intermodal transit facility	2035	$2.1	Regional
54	CARTS		Williamson	Intermodal Facility - Taylor Station Build-out	City of Taylor	Construct new Amtrak platform and pedestrian connections to Taylor Station	2016	$0.5	Regional
55	CARTS		Hays	Intermodal Facility - Wimberley Station	Wimberley	Construct intermodal facility to serve Wimberley area	2022	$1.5	Regional
56	Lone Star Rail		Williamson / Travis / Hays	Lone Star Rail	Georgetown - Guadalupe County Line	Regional passenger rail	2020	$2,049.0	Regional
57	Capital Metro		Travis / Williamson	Manor to Highland Mall Connect	Manor - Highland	Connect Bus	2018	$1.6	Regional
58	Capital Metro		CMTA	MetroRail Red Line Phase II	Leander - Downtown Austin	Double tracking and associated work to increase service levels	2016	$29.1	Regional
59	Capital Metro		Travis	MLK / Webberville to Central Austin Connect	Webberville - Central Austin	Connect Bus	2018	$2.6	Regional
60	Capital Metro		Travis	N Lamar Transit Center	N. Lamar @ US 183	Construct transit center	2017	$2.1	Regional
61	Capital Metro		Travis	N. Lamar/S. Congress - BRT	Southpark Meadows - Tech Ridge	Bus Rapid Transit enhancements/upgrade	2020	$231.1	Regional
62	Capital Metro		CMTA	Oak Hill Flyer Expanded Service	Oak Hill to UT	Expansion of bus service. Includes station design & development, traffic signal upgrades, and supporting infrastructure.	2018	$0.5	Regional
63	Capital Metro		Williamson	Park and Ride	Hutto	Park and Ride	2018	$3.3	Regional
64	Capital Metro		Travis	Park and Ride	Pflugerville	Park and Ride	2018	$3.3	Regional
65	Capital Metro		Williamson	Park and Ride	RR. Univ. Blvd.	Park and Ride	2018	$3.3	Regional
66	Capital Metro		Travis	Park and Ride	Webberville	Park and Ride	2018	$3.3	Regional

Transit Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (Millions)	Funding Source
67	Capital Metro		Travis / Williamson	Parmer / Manor to Tech Ridge Connect	Manor - Tech Ridge	Connect Bus	2018	$1.3	Regional
68	CARTS		CARTS	Passenger Shelters & Amenities	CARTS Service Area	Installation of new/various passenger shelters and amenities; signage system-wide	2017	$0.2	Regional
69	Capital Metro		Travis	Pflugerville P&R to Howard Station	Pflugerville - Howard Station	MetroRapid	2021	$25.3	Regional
70	CARTS		Hays	Public Transit Vehicles	City of San Marcos, UZA	Purchase 6 heavy duty 30-foot buses	2016	$2.6	Regional
71	Capital Metro		CMTA Metrorail Corridor	Red Line Improvements	Leander - Downtown Austin	Commuter Rail - Increases capacity for more passenger service	2019	$111.4	Regional
72	Capital Metro		Regional	Regional Capital Maint. Program	-	All Modes - System Maintenance - Projects Undefined Augmented with FTA Fixed Guideway Modernization	2017	$8.1	Regional
73	Capital Metro		Regional	Regional Fare Collection System	-	All Modes	2019	$49.1	Regional
74	Capital Metro		CMTA	Riata / Kramer	Flex Route	New route	2016	$0.4	Regional
75	Capital Metro		CMTA	RM 2222/RM 620 Park and Ride	Intermodal Facility	Construct transit center/park and ride	2020	$6.0	Regional
76	Capital Metro		Travis	S. IH 35 Transit Center	IH 35 @ Slaughter	Construct transit center	2019	$5.8	Regional
77	Capital Metro		Travis	S. Lamar BRT / W TX 71	Ben White - Oak Hill	Bus Rapid Transit	2020	$13.3	Regional
78	San Marcos		Hays	San Marcos Urban Transit Improvements	-	-	2040	$4.2	Regional
79	Capital Metro		Travis	Slaughter Lane BRT	UPRR/Slaughter - Southpark Meadows	Bus Rapid Transit	2040	$21.3	Regional
80	Capital Metro		CMTA	Southwest Transit Center	Capital Metro Service Area	Replace/Expand/Add Park and Ride/Transit Facilities	2018	$3.3	Regional

Table 34: Grouped Projects

These are projects that do not need to be listed individually in the plan in order to qualify for federal and state funding. Following the grouped project categories are examples of grouped projects. This is not an inclusive list and inclusion on this list does not guarantee implementation.

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
	Various	Grouped	Various	Roadway Preventative Maintenance and Rehabilitation	CAMPO Region	Preserve condition of regional roadways. Includes pavement repair, seal coats, overlays, resurfacing, restoration and rehabilitation done within existing right of way.	2015-2040	$1,471
	Various	Grouped	Various	Bicycle and Pedestrian Projects and Programs	CAMPO Region	Stand-alone bicycle and pedestrian projects including separated paths serving a transportation purpose, as well as retrofitting roadway system to include bicycle lanes, sidewalks, and other bicycle and pedestrian amenities, educational programs and other projects and programs benefiting bicyclists and pedestrians.	2015-2040	$342
	Various	Grouped	Various	Bridge Replacement and Rehabilitation and Railroad Grade Separations	CAMPO Region	Projects to replace and/or rehabilitate functionally obsolete or structurally deficient bridges on state system roadways as well as City and County roadways throughout the region. Projects to construct or replace existing highway-railroad grade crossings and to rehabilitate or replace deficient railroad underpasses (resulting in no added capacity). Includes various locations on state system roadways as well as City and County roadways throughout the region.	2015-2040	$206
	Various	Grouped	Various	Safety and Operations Projects and Programs	CAMPO Region	Includes construction or replacement/rehabilitation of guard rails, median barriers, crash cushions, pavement markings, skid treatments, medians, lighting improvements, railroad/highway warning devices, fencing, intersection improvements, interchange modifications, and signal synchronization. Also includes highway traffic operation improvement projects including the installation of ramp metering control devices, variable message signs, traffic monitoring equipment and projects in the Federal ITS/IH programs. Includes various locations on state system roadways as well as City and County roadways throughout the region.	2015-2040	$122
	Various	Grouped	Various	Public Transportation Operations and Maintenance	CAMPO Region	Operations of regional and local public transportation system as well as maintenance, rehabilitation, and replacement of public transportation facilities and rolling stock	2015-2040	$9,100
The projects below meet the qualifications for the *2040 Plan* grouped categories. These projects are not an all-inclusive list of grouped projects.								
CMTA87	Capital Metro		CMTA	Bus replacements	-	-	2015 - 2040	$1,005.0
CMTA90	Capital Metro		CMTA	Bus shelters and facilities improvements	-	-	2015 - 2040	$103.9
CMTA89	Capital Metro		CMTA	ITS projects	-	-	2015 - 2040	$72.7

Grouped Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
CMTA88	Capital Metro		CMTA	MetroRail projects	-	-	2015 - 2040	$132.7
CMTA86	Capital Metro		CMTA	Non-revenue vehicle replacements	-	-	2015 - 2040	$247.9
CMTA85	Capital Metro		CMTA	Paratransit vehicle replacement	-	-	2015 - 2040	$202.6
CARTS34	CARTS		Regional	Public Transportation Operations and Maintenance	CAMPO Region	Operations of regional and local public transportation system as well as maintenance, rehabilitation, and replacement of public transportation facilities and rolling stock	2015 - 2040	$800.0
CMTA57	Capital Metro		CMTA Metrorail Corridor	Red Line Improvements	Leander - McNeil Junction	Commuter Rail	2028	$345.6
CMTA56	Capital Metro		Regional	Regional Capital Maint. Program	-	All Modes - System Maintenance - Projects Undefined - Augmented with FTA Fixed Guideway Modernization	2023	$34.4
CMTA60	Capital Metro		Regional	Regional Capital Maint. Program	-	All Modes - System Maintenance - Projects Undefined - Augmented with FTA Fixed Guideway Modernization	2028	$94.9
CMTA68	Capital Metro		Regional	Regional Capital Maint. Program	-	All Modes - System Maintenance - Projects Undefined - Augmented with FTA Fixed Guideway Modernization	2033	$162.0
CMTA70	Capital Metro		Regional	Regional Capital Maint. Program	-	All Modes - System Maintenance - Projects Undefined - Augmented with FTA Fixed Guideway Modernization	2038	$207.0
CMTA66	Capital Metro		Regional	Regional Fare Collection Upgrade/ Replacement	-	All Modes	2030	$90.0
CMTA59	Capital Metro		Travis / Williamson	Regional Rail Maintenance Facility/Upgrade	Leander - Downtown Austin	Commuter Rail	2029	$69.2
CMTA67	Capital Metro		CMTA	Replacement of Metrorail Vehicles	-	Commuter Rail	2033	$134.7
WC28	Williamson		Williamson	IH-35	SH 45 - RM 1431	Add auxiliary lane	2040	$26.9
BURN23	Burnet		Burnet	US 183	south LP 308 in Briggs - RM 243 (Williamson County Line)	Widen to add shoulders and construct center left turn lanes at LP 308 (N and S) and RM 243	2040	$25.3
BURN10	Burnet		Burnet	US 183	north LP 308 - south LP 308 in Briggs	Widen to add shoulders and construct left turn lanes at LP 308 (N and S)	2040	$6.6
BURN26	Burnet		Burnet	US 281	PR 4 - north of RM 1855 intersection	10' shoulders, 14' center left turn lane, including replacing bridge at Honey Creek	2040	$14.6
BURN33	Burnet		Burnet	US 281	US 281 at Resource Pkwy	Construct signal	2040	$0.6
BURN20	Burnet		Burnet	US 281	2nd St - RM 1431 in Marble Falls	Increase safety by controlling access through addition of curb and gutter and sidewalk	2040	$1.2

Grouped Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
BURN18	Burnet		Burnet	US 281	Lantana - Nature Heights in Marble Falls	Increase safety by controlling access through addition of curb and gutter and sidewalk	2040	$1.4
BURN19	Burnet		Burnet	US 281	RM 1431 - Lantana in Marble Falls	Increase safety by controlling access through addition of curb and gutter and sidewalk	2040	$1.4
BURN32	Burnet		Burnet	US 281	at RM 1431 in Marble Falls	Intersection improvements (excluding SE corner) including radius, ADA sidewalks and ped heads	2040	$3.9
BURN17	Burnet		Burnet	US 281	at RM 1431 in Marble Falls	Intersection improvements (SE corner only) including radius, ADA sidewalks and ped heads	2040	$1.3
BURN07	Burnet		Burnet	US 281	left turn lane from RM 2147E - SH 71	Reconstruct - 5 lanes, shoulders	2040	$21.3
BURN38	Burnet		Burnet	US 281	SH 71 - Blanco County Line	Widen to add shoulders and construct continuous left turn lane	2040	$13.8
BC18	Bastrop County		Bastrop	US 290 W	FM 2014 - Lee County Line	Upgrade from MAU 4 to MAD4/FWY4	-	$12.6
BC19	Bastrop County		Bastrop	SH 21 E	Lincoln Lake Rd - Cardinal Ln	Add continuous turn lane	-	$10.8
BURN27	Burnet		Burnet	SH 29	1.6 miles east of US 281 in Burnet (Longhorn RR) - Burnet east County Line	Add left turn lane and shoulders	2040	$26.6
BURN29	Burnet		Burnet	SH 29	RM 1174 in Bertram - Williamson County Line	Add left turn lane and shoulders	2040	$38.3
BURN42	Burnet		Burnet	SH 29	SH 29 and RM 243 - elementary school	Construct sidewalks in Bertram	2040	$2.6
BURN13	Burnet		Burnet	SH 29	at CR 258/CR 303 between Burnet and Bertram	Install left turn lane	2040	$2.7
BURN15	Burnet		Burnet	SH 29	at CR 304 between Burnet and Bertram	Install left turn lane	2040	$1.5
BURN14	Burnet		Burnet	SH 29	at CR 333 between Burnet and Bertram	Install left turn lane	2040	$1.5
BURN16	Burnet		Burnet	SH 29	south Gabriel St - west Vaughn St in Bertram	Install left turn lane	2040	$1.0
BURN21	Burnet		Burnet	SH 29	Left turn lane from 0.1 MI E of RM 690 - RM 3509	Reconstruct - 5 lanes, 3' shoulders	2040	$39.9
BC04	Smithville		Bastrop	SH 71	at Riverbend Park in Smithville	Install larger turn lane	2040	$0.9
BURN06	Burnet		Burnet	SH 71	0.201 miles west of CR 401 - 0.201 milest east of CR 401	Install left turn lane	2040	$1.7
BURN12	Burnet		Burnet	SH 71	0.284 miles east of CR 401 - 2.914 miles east of CR 501	Rehabilitate pavement and add shoulders including left turn lanes	2040	$8.2
BURN11	Burnet		Burnet	SH 71	2.914 miles east of CR 401 - Blanco County Line	Rehabilitate pavement and add shoulders including left turn lanes	2040	$93.3

Grouped Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
TX04	TxDOT		Bastrop / Travis / Williamson	SH 95	CR 544 - US 290	Convert Super 2	2015	$11.7
BC06	City of Bastrop		Bastrop	SH 95	north of Piney Creek bridge - Phelan Road	Add continuous turn lane	2040	$9.4
BC08	Bastrop County		Bastrop	SH 304	Trigg Road - Caldwell County Line	Add continuous turn lane	2040	$119.5
BUDA13	Buda	Hays / TxDOT	Hays	FM 1626 Overpass	at RM 967	ROW study only	2028	$1.2
CW43	Caldwell		Caldwell	FM 2001 / Silent Valley Rd	at SH 21	Realign and widen shoulders	2035	$25.5
BUDA35	Buda		Hays	New FM 2001	Old FM 2001 - Sunbright Blvd	Add sidewalks - both sides	2018	$0.2
BUDA36	Buda		Hays	New FM 2001	Sunbright Blvd	Traffic signal warrant and potential signal	2023	$0.2
BUDA15	Buda		Hays	FM 2770	Bluff St - Main St	Add sidewalk on one side	2023	$-
AUSTC221	Travis		Travis	Decker Lane (FM 3177)	Loyola Lane - Daffan Lane	Construct sidewalk	2016	$2.7
AUSTC221	Travis		Travis	Decker Lane (FM 3177)	Loyola Lane - Daffan Lane	Construct sidewalk	2016	$2.7
BURN01	Burnet		Burnet	RM 243	SH 29 - US 183	Add guardrail and safety treat fixed objects	2040	$1.2
BURN37	Burnet		Burnet	RM 243	Mahomet at Church	Replace overflow with bridge	2040	$2.6
BURN02	Burnet		Burnet	RM 243	SH 29 - 8 miles north (in San Gabriel River)	Widen to add 3' shoulder	2040	$10.1
BURN25	Burnet		Burnet	RM 963	RM 2340 - RM 1174	Add 4' shoulders, level up, extend structures, includes replacement of bridge at Rocky Creek	2040	$21.3
BURN24	Burnet		Burnet	RM 963	RM 1174 - US 183	Add 4' shoulders, level up, extend structures, includes replacement of bridge at Rocky Creek	2040	$55.9
BURN34	Burnet		Burnet	RM 1174	at Oatmeal Creek Low Water Crossing	Replace low water crossing w/180' bridge 2-12' lanes and 2-10' shoulders	2040	$3.1
BURN41	Burnet		Burnet	RM 1174	Low water crossing on tributary of Oatmeal Creek	Replace low water crossing with 100' bridge, 2-12' lanes and 2-10' shoulders	2040	$2.7
WC31	Williamson		Williamson	RM 1431	at IH-35	Add right turn lane eastbound to southbound	2040	$2.1
BURN08	Burnet		Burnet	RM 1431	Hamilton Creek - 0.1 MI W	Install continuous left turn lane	2040	$1.7
BURN09	Burnet		Burnet	RM 1431	at CR 126	Install continuous left turn lane and 4' shoulders	2040	$1.5
BURN40	Burnet		Burnet	RM 1431	RM 1174 - Travis County Line	Realign roadway and add 10' shoulders	2040	$16.0
BURN22	Burnet		Burnet	RM 1431	Marble Falls east county line - east of Sycamore Creek	Realign roadway including add 14' left turn lane and 10' shoulders	2040	$42.6
BURN31	Burnet		Burnet	RM 1431	near Colorado River Bridge in Kingsland	Replace bridge including decel and left turn lane at RM 2342	2040	$11.1

Grouped Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
BURN03	Burnet		Burnet	RM 2147	4.7 MI W of US 281 (The Peninsula) - 3.2 MI W of US 281 (East CL Cot-nwood Shores)	Add CLT and shoulders	2040	$4.4
BURN30	Burnet		Burnet	RM 2147	3.2 miles west of US 281 (east city limit of Cottonnwood Shores) - 0.5 miles west of US 281	Rehabilitate pavement and add shoulders	2040	$35.9
BURN36	Burnet		Burnet	RM 2147	at Flatrock Creek	Replace low water crossing bridge	2040	$2.6
BURN05	Burnet		Burnet	RM 2342	at PR 4	Improve/Realign Intersection	2040	$0.6
AUSTC003	Austin		Williamson	Anderson Mill Rd	Loop 1 Crossover	New MAD-4	2030	$0.5
BUDA02	Buda		Hays	Bluff St	FM 2770 - RM 967 (North)	Reconstruct, add sidewalks	2018	$1.8
BUDA01	Buda		Hays	Bluff St	at Main St	Intersection study and reconstruction	2023	$0.6
BUDA05	Buda		Hays	Cabela's Dr	IH-35	Intersection improvements	2028	$0.2
KYLE25	Kyle		Hays	Center St	FM 150 - IH-35	Improve Center St - Downtown needs streetscape improvements, FM 150 needs new location to relieve downtown	2035	$7.3
KYLE54	Kyle		Hays	Center St	Downtown	Improve parking/pedestrian safety - reconfigure parking to improve sight distances, lower traffic speeds, improve pedestrian safety	2035	$1.9
KYLE51	Kyle		Hays	Center St	at FM 150	Install traffic signal	2035	$0.4
KYLE52	Kyle		Hays	Center St	at Old Stagecoach	Install traffic signal	2035	$0.4
KYLE02	Kyle		Hays	CR 158	CR 134	Eliminate intersection skew, not all turns currently possible	2035	$0.1
BUDA19	Buda		Hays	Garlic Creek Trail	Pedestrian Bridge - RM 967	New hike/bike trail	2018	$0.4
BUDA55	Buda		Hays	Garlic Creek Trail (East)	Onion Creek - Garlic Creek Park	New hike/bike trail - City Park to Garlic Creek Park	2018	$0.8
KYLE49	Kyle		Hays	Goforth	at Bunton	Install traffic signal	2035	$0.4
KYLE50	Kyle		Hays	Goforth	at Lehman	Install traffic signal, improve sight distance in east quadrant	2035	$0.4
LEA06	Leander		Williamson	Heritage Trail along Bagdad Rd	Crystal Falls - Bledsoe Park	Trail; Connection to existing trail north to Liberty Hill	2016	$1.3
KYLE53	Kyle		Hays	Kohlers Crossing	at Dry Hole	Install traffic signal	2035	$0.4
HAYS039	Hays		Hays	Lime Kiln Rd / Cypress Rd	Blanco River crossing	New MAU 2; Reopen county road connection across Blanco River	2035	$9.6
BUDA25	Buda		Hays	Main St	at Garison Rd	Intersection study and reconstruction	2018	$0.3
BUDA29	Buda		Hays	Main St	Collector 4	Traffic signal warrant and potential signal	2023	$0.2
BUDA30	Buda		Hays	Main St	Firecracker Rd	Traffic signal warrant and potential signal	2023	$0.2
BUDA54	Buda		Hays	N Main St trail extension	Garison Rd - CR 118	New hike/bike trail parallel to N Main St	2018	$1.3
BUDA37	Buda	Hays	Hays	Old Black Colony Rd	FM 1626 - RM 967	Reconstruct, add sidewalks, relocate RM 967 junction	2018	$10.6

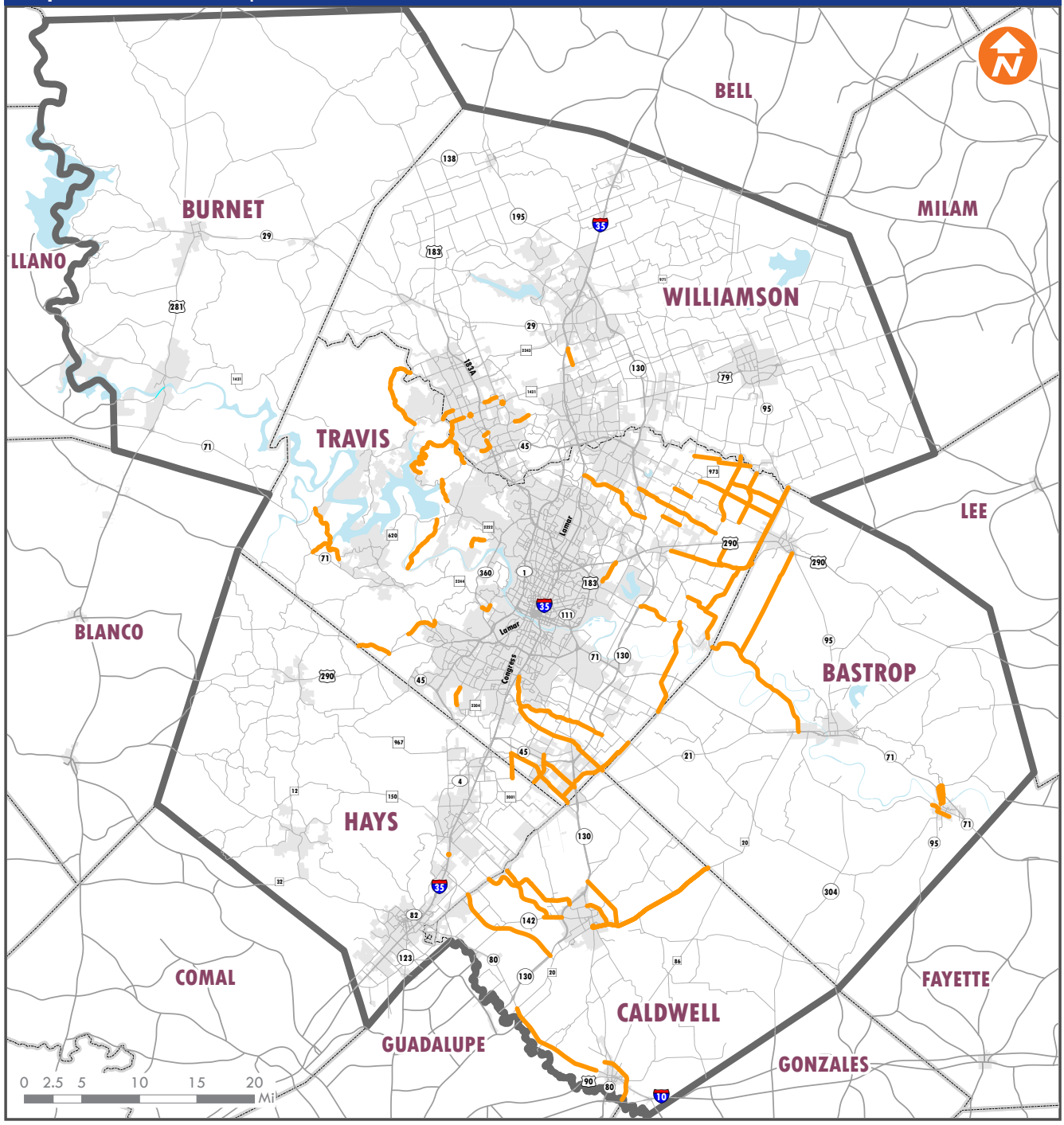
Grouped Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
BUDA39	Buda	Hays	Hays	Old Goforth Rd	Glenview Ln	Intersection study and reconstruction	2023	$0.6
BUDA41	Buda		Hays	Old San Antonio Rd	Main St - Cabela's Dr	Add sidewalk on one side	2018	$0.1
BUDA42	Buda	Hays	Hays	Old San Antonio Rd	SH 45 - Main St	Reconstruct, add sidewalks	2028	$3.4
BUDA45	Buda		Hays	Robert Light Blvd	FM 1626	Traffic signal warrant and potential signal	2023	$0.2
RR25	Round Rock	Williamson	Williamson	Round Rock Avenue	Deepwood Drive - IH-35	Reconstruct MAD-4 with RR grade separation and access roads	2020	$26.7
BUDA53	Buda		Hays	S Main St trail extension	300' north of Goforth Rd - 700' south of Goforth Rd	New hike/bike trail parallel to S Main St	2015	$0.1
BUDA52	Buda		Hays	W Goforth Rd	RM 967 - Cedar St	Add sidewalks - one side	2018	$-
85	TxDOT		Travis	IH-35 / Slaughter Creek Overpass	Slaughter Creek Overpass	Reconstruct bridge and restore second lane on frontage road	2015	$7.8
86	TxDOT		Hays	IH-35 Operational Improvements in Hays County	RM 150 to north of Blanco River - at Posey Road	From RM 150 to north of Blanco River - operational improvements through the reversing of northbound and southbound ramps. At Posey Road - replacement of bridge and approaches (I-35 main lanes will be constructed to go over Posey Road). Construction of bicycle and pedestrian facilities in areas that they currently don't exist, using a shared use path within existing right-of-way, and improved storm water management infrastructure.	2015	$28.7
87	TxDOT		Travis	IH-35 Operational Improvements in Travis County	north of Stassney Lane - south of William Cannon Drive	Replacement of the frontage road bridges over Williamson Creek to allow for addition of bicycle and pedestrian facilities, reconstruction of the existing underpass structures at Stassney Lane and William Cannon Drive and the addition of U-turn bridges at these locations, widening of the existing main lanes to incorporate shoulders and auxiliary lanes, and reconfiguration of existing ramps. Construction of bicycle and pedestrian facilities in areas that they don't currently exist using a shared use path within existing right of way, and improved storm water management infrastructure.	2015	$64.0
88	TxDOT		Williamson	IH-35 Operational Improvements in Williamson County	RM 620 - SH 45 N	North bound operational improvements through the construction of a north bound auxiliary lane and reconfiguration of existing ramps to improve main lane and frontage road operations. Construction of bicycle and pedestrian facilities in areas that they currently don't exist, using a shared use path within the existing right-of-way and improved storm water management infrastructure.	2015	$28.0
101	TxDOT		Travis	Loop 1	north of Slaughter - south of LaCrosse	Construct underpasses at Slaughter and Lacrosse	2016	$43.5
121	TxDOT		Hays	SH 80	SH 21 - FM 1984	Complete gap in shoulder for bicycle travel	2017	$5.0
135	TxDOT		Hays	SH 123	IH-35 - DeZavalla Dr	Construct sidewalks	2017	$0.7
162	TxDOT		Travis	FM 969	Tannehill Lane - FM 3177/Decker Lane	Bicycle/Pedestrian Accommodation	2016	$1.6
	TxDOT		Travis	SH 71	West of US 183 - Presidential Blvd	Construct collector distributor road	2019	$24.6
	TxDOT		Travis	IH-35	Woodward - Woodland	Operational improvements	2016	$48.0

Grouped Projects (continued)

ID	Sponsor	Cosponsor	County	Project	Limits/Location	Description	Let Year	YOE Cost (In Millions)
	TxDOT		Travis	IH-35	South of US 290 - South of Airport Blvd	Operational improvements, ramps and collector distributor road	2018	$65.0
	TxDOT		Travis	IH-35	US 290 - Rundberg Ln	Operational improvements, construction collector distributor road	2018	$105.0

Map 40: Illustrative Projects



This map was developed by CAMPO for the purpose of aiding in regional transportation planning decisions and is not warranted for any other use. CAMPO makes no guarantee regarding its accuracy or completeness. If you would like to receive the GIS layers found on this map send your request to: campo@campotexas.org.
Data Source: CAMPO

Author: GSG
Document Path: H:\Maps\2040 Plan Maps\Public Review Maps\Illustrative projects.mxd

Category

- Illustrative
- City Limits

CAMPO

Table 35: Illustrative Projects

These projects are not part of the fiscally constrained portion of the plan. Funding has not been identified for these projects. This list may also include projects that do not have sponsors that have the authority to implement the project. Once a project has identified funding and a viable sponsor, it must be amended into one of the fiscally constrained project lists in the plan.

Sponsor	Cosponsor	County	Project	Limits/Location	Description
Kyle		Hays	IH 35	At Opal Ln	New Bridge, preferred South Loop location
Cedar Park		Williamson	183A Frontage Lanes	Avery Ranch Blvd to RM 1431	New 2-lane Frontage Road on each side
Cedar Park	CTRMA	Williamson	US 183	North of Avery Ranch Blvd	Direct Connect to 183A
Caldwell		Caldwell	US 183	Luling East Relief Route Alternative	Construct new 4-lane divided highway
Cedar Park		Williamson	US 183/RM 1431	Intersection	Grade Separation
Caldwell		Caldwell	SH 80	CR 111/Political Rd - Luling City Limit	Widen to 4 lanes
Smithville		Bastrop	SH 95/Loop 230	Colorado River Bridge - Entrance to Buescher State Park	Add a 10-foot wide shared hike/bike trail (engineering and construction needed)
Caldwell		Caldwell	SH 142	FM 150 Extension - SH 130	Widen to 4 lanes
Caldwell	Lockhart	Caldwell	FM 20	at US 183	Realign FM 20 at US 183 intersection to eliminate a traffic signal
Caldwell		Caldwell	FM 20	US 183 - Bastrop County Line	Widen to 4 lanes
Caldwell		Caldwell	FM 150 Extension	SH 21 - SH 142	Construct new 4-lane roadway in phases with participation by developer
Bastrop County	City of Bastrop	Bastrop	FM 969	Travis County Line to SH 71	Construct MAD 4 or Super 2
Bastrop County		Bastrop	FM 1704	US 290 - FM 969	Construct MAD 4
Caldwell		Caldwell	FM 2720/FM 2001	SH 21 along FM 2720, then to FM 2001 along County View Rd to US 183	Provide 4 lanes as continuation of the proposed Kyle Pkwy Extension in Hays County
Smithville		Bastrop	Upton Road (FM 2571)	SH 95 - City Limits	Add a 5-foot wide bike trail on both sides of the road (engineering and construction needed)
Cedar Park		Williamson	RM 1431	Anderson Mill Rd to Bagdad Rd	Improve to MAD-6
Travis		Travis	Anderson Mill Rd	Williamson Co. line - Zeppelin Dr	Widen to MAD-6 (Phase 2 - CP 02)
Travis		Travis	Anderson Mill Rd	Zeppelin Dr - Cypress Creek Rd	Widen to MAD-6 (Phase 2 - CP 01)
Travis		Travis	Anderson Mill Rd	Cypress Creek Rd - FM 2769	Widen to MAD-6
Travis		Travis	Ballerstedt Rd	US 290 E - Littig Rd	Widen to MAD-4
Travis		Travis	Bee Creek Rd	Highland Blvd. - FM 2322	Widen to MAD-4
Travis		Travis	Bitting School Rd	Littig Rd - Blake Manor Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	Blake Manor Rd	Burelson Manor Rd - FM 969	Widen to MAD-4
Travis		Travis	Bluff Springs Rd (Coulver Rd)	Thaxton Road - US 183 S	New MAD-4 and Widen to MAD-4
Travis		Travis	Bluff Springs Rd / Old Lockhart Rd	Pleasant Valley Rd -Thaxton Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	Bluff Springs Rd / Old Lockhart Rd	William Cannon Dr. - Slaughter Ln	Widen to MAD-4

Illustrative Projects (continued)

Sponsor	Cosponsor	County	Project	Limits/Location	Description
Travis		Travis	Bluff Springs Rd / Old Lockhart Rd	Slaughter Ln - Pleasant Valley Rd	Widen to MAD-4
Travis		Travis	Bob Wire Rd	SH 71 West - Bee Creek Road	Expand roadway to meet county standards for MNR-2
Travis		Travis	Brodie Ln	Brodie Springs Trail - Yandall Dr.	Expand roadway to meet county standards for MAU-2
Cedar Park		Williamson	Brushy Creek Road	Arrowhead Trail to east city limit	Widen to 4-lane major arterial divided
Travis		Travis	Bullick Hollow Rd	Oasis Bluff - FM 2769	Widen to MNR-4
Travis		Travis	Burleson Manor Rd	FM 969 - SH 71	New MAD-4
Travis		Travis	Burleson Manor Rd/Wolf Ln	SH 71 - Pearce Ln	New MAD-4 and Widen to MAD-4
Travis		Travis	City Park Rd	Emma Long Metropolitan Park - COA City Limits	Widen to MAD-2
Travis		Travis	County Line Rd	Williamson Co. line - Lund Carlson Rd	Widen to MAD-4
Travis		Travis	County Line Rd	Lund Carlson - Elgin City Limits	Widen to MAD-4
Travis		Travis	County Line Rd	US 290 E - Littig Rd	Widen to MAD-4
Elgin		Travis	County Line Road	Highway 290 to Elgin City Limits	Construct new 4-lane roadway
Travis		Travis	CR 105/Turnersville Rd	Pleasant Valley Rd - Williamson Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	Decker Lake Rd	SH 130 - Taylor Ln	New MAD-4 and Widen to MAD-4
Travis		Travis	Doyle Overton/Bock Rd/Laws Rd	FM 812 - Maha Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	Doyle Overton/Bock Rd/Laws Rd	Maha Rd - SH 130	New MAD-4 and Widen to MAD-4
Travis		Travis	Doyle Overton/Bock Rd/Laws Rd	SH 130 - Williamson Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	E Pecan St (Pflugerville Rd)	SH 130 (N) - Cameron Rd	Widen to MAD-6
Travis		Travis	Fitzhugh Rd	US 290 W - Hays Co. Line	Widen to MAD-4
Travis		Travis	Jesse Bohls Rd/Steger Ln	Cameron Rd - FM 973	New MAD-4 and Widen to MAD-4
Travis		Travis	Johnny Morris Rd	COA - US 290 E	Widen to MAD-4
Travis		Travis	Kelly Ln	FM 973 - Manda Carlson Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	Kelly Ln	Manda Carlson Rd - Wells Rd	New MAD-4
Travis		Travis	Kelly Ln	Wells Rd - County Line Rd	New MAD-4 and Widen to MAD-4
Cedar Park	Austin	Williamson	Lakeline Blvd	Riviera Drive to US 183	Direct Connect to US 183
Travis		Travis	Lime Creek Rd	Anderson Mill Rd - FM 2769	Expand roadway to meet county standards for MNR-2
Travis		Travis	Littig Road	FM 973 - Kimbro Road	Widen to MAD-4
Travis		Travis	Littig Road	Kimbro - Ballerstedt Rd	Widen to MAD-4
Travis		Travis	Littig Road	Ballerstedt Rd - Bastrop Co. Line	Widen to MAD-4
Cedar Park		Williamson	Little Elm Trail	US 183 to 183A	Construct new 4-lane minor arterial
Travis		Travis	Lund Carlson Rd	Manda Carlson Rd - Werchan Ln	New MAD-4 and Widen to MAD-4
Travis		Travis	Lund Carlson Rd	Werchan Ln - County Line Rd	New MAD-4 and Widen to MAD-4
Travis		Travis	Maha Loop Rd	US 183 S- SH 130	Widen to MAD-4

Illustrative Projects (continued)

Sponsor	Cosponsor	County	Project	Limits/Location	Description
Travis		Travis	Maha Loop Rd/Maha Rd	SH 130 - Caldwell Co. line	Widen to MAD-4
Travis		Travis	Manda Carlson Rd	Williamson Co. - Pfluger Berkman Ln	Widen to MAD-4
Travis		Travis	Manda Carlson Rd	Pfluger Berkman - Lund Carlson Rd	Widen to MAD-4
Travis		Travis	Manda Carlson Rd	Lund Carlson Rd - FM 1100	New MAD-4 and Widen to MAD-4
Smithville		Bastrop	MLK Boulevard	SH 95 - Miller Street	Add a 4-foot wide sidewalk (engineering and construction needed)
Capital Metro		Travis	MoKan Line	Round Rock - US 290	Commuter Rail
Travis		Travis	Moore Rd (Slaughter)	FM 973 - SH 130	Widen to MAD-6
Travis		Travis	Moore Rd (Slaughter)	SH 130 - Maha Loop Rd	Widen to MAD-6
Travis		Travis	Nameless Rd	Williamson Co. line - FM 1431	Widen to MAD-4
Cedar Park		Travis / Williamson	New Hope Drive	RM 1431 to Lakeline Blvd	Improve to MAD-4
Cedar Park		Williamson	New Hope Drive	Cottonwood Creek Trl to Reagan Blvd	New MAD-4
Cedar Park		Williamson	New Hope Drive	Reagan Blvd to CR175	New MAD-4
Caldwell		Caldwell	New Roadway 84	NE Lockhart bypass	Construct new 4-lane arterial highway between SH 130 and FM 20
Caldwell	Lockhart	Caldwell	New Roadway 93	From FM 2001/US 183 intersection - FM 20	Construct new 4-lane arterial (NE Lockhart Loop option)
Travis		Travis	Old Bee Cave Rd/Thomas Springs Rd	SH 71 West - Circle Drive	Expand roadway to meet county standards for MNR-2
Travis		Travis	Old Lockhart Rd	FM 1625 - SH 130	Widen to MAD-4
Cedar Park		Williamson	Parmer Lane/RM 1431	Intersection	Grade Separation
Travis		Travis	Pfluger Berkman	FM 973 - Manda Carlson Rd	Widen to MAD-4
Travis		Travis	Pfluger Berkman	Manda Carlson Rd - Williamson County Line	New MAD-4 and Widen to MAD-4
Travis		Travis	Pflugerville East Rd	Decker Ln - FM 973	New MAD-6 and Widen to MAD-6
Travis		Travis	Pflugerville East Rd	FM 973 - FM 1100	New MAD-4 and Widen to MAD-4
Travis		Travis	Pflugerville East Rd (Cameron Rd)	Cameron Rd - Decker Ln	Widen to MAD-6
Travis		Travis	Pleasant Valley Rd/N. Turnersville Rd	Turnersville Rd - Satterwhite Rd	Widen to MAD-4
Travis		Travis	Quinlin Park Rd	RM 620 - River Bend	Widen to MAD-4 and expand roadway to meet county standards for MAD-4
Georgetown		Williamson	Rabbit Hill/Mays Street Ext.	Westinghouse to Blue Springs Parkway	Improve to Principal Arterial Divided; upgrade from 2 lane to 4 DIV
Travis		Travis	Rowe Ln/Pfluger Berkman	Decker Ln - FM 973	New MAD-4 and Widen to MAD-4
Travis		Travis	Slaughter Ln	Old Lockhart Rd - McKinney Falls Pkwy	Widen to MAD-6
Travis		Travis	Slaughter Ln	McKinney Falls Pkwy - US 183	Widen to MAD-6
Travis		Travis	Slaughter Ln	US 183 - FM 973	Widen to MAD-6
Travis		Travis	Travis Cook Rd	Southwest Pkwy. - SH 71 W	Widen to MAD-4
Travis		Travis	Turnersville Rd/Williamson Road	Williamson Rd - Caldwell County Line	Widen to MAD-4

Illustrative Projects (continued)

Sponsor	Cosponsor	County	Project	Limits/Location	Description
Smithville		Bastrop	Two Mile Road / American Legion Road	Entrance to Bueschler State Park - Loop 230/SH 95	Add a 10-foot wide shared hike/bike trail (engineering and construction needed)
Travis		Travis	Wells Branch Pkwy	FM 1825 - Immanuel Rd	Widen to MAD-6
Travis		Travis	Wells Branch Pkwy	Immanuel Rd - Cameron Rd	Widen to MAD-6
Travis		Travis	Wells Branch Pkwy	Cameron Rd - SH 130 (N)	Widen to MAD-6
Travis		Travis	Wells Branch Pkwy	Decker Lane - FM 973	Widen to MAD-4
Travis		Travis	Wells Rd/Werchan Ln	Pfluger Berkman Ln - Lund Carlson Rd	Widen to MAD-4
Travis		Travis	Wells Rd/Werchan Ln	Lund Carlson Rd - FM 1100	New MAD-4 and Widen to MAD-4
Travis		Travis	Westbank Dr.	Loop 360 - City of West Lake Hills	Widen to MAD-4
Travis		Travis	William Cannon Dr.	McKinney Falls Pkwy. - FM 812	Widen to MAD-6
Travis		Travis	Williamson Rd/FM 1625	FM 1327 - Hays County Line	New MAD-4 and Widen to MAD-4
Caldwell		Caldwell	Yarrington Road Extension	SH 21 - SH 130 at Black Ankle Road	Construct new 4-lane divided highway
Lone Star Rail		Williamson	LSTAR - Passenger Rail / UPRR	Taylor - Round Rock	Commuter Rail - Extension to Taylor
Capital Metro		Travis	Express Route	City of Bee Cave to City of Austin Central Business District	Express bus route
Capital Metro		Travis	MetroRapid	Howard Station to Pflugerville Park and Ride	MetroRapid route

Table 36: Corridor Studies

ID	Submitter	Corridor	Limits/Location
1	City of Austin	Airport Boulevard (Completed)	Lamar Boulevard - US 183
2	City of Austin	Brodie Lane Corridor	Slaughter Lane - FM 1626
3	City of Austin	Burnet-Anderson Corridor Plan	Burnet Road from 45th Street to US 183, and Anderson Lane from MoPac to the railroad tracks
4	Capital Metro	Central Corridor Study	
5	TxDOT	FM 150	RM 12 - IH 35
6	CTRMA	FM 620	RM 2222 to US 183
7	TxDOT	FM 734	RM 1431 - US 290
9	TxDOT	FM 812	US 183 - SH 21
10	TxDOT / Bastrop County	FM 969	US 183 - SH 71
11	City of Austin	FM 969 (Completed)	US 183 - Webberville
12	TxDOT	FM 973	US 79 - US 183
13	TxDOT	FM 1825	IH 35 - SH130
14	TxDOT	FM 1826	US 290 - Nutty Brown Rd
15	City of Austin	Guadalupe Street Corridor (Underway)	MLK to 29th Street
16	TxDOT	IH 35	SH 130 - Posey Rd
17	City of Austin	Lamar Boulevard / Burnet Road (Completed)	US 183 - IH 35 / Koenig Lane - Mopac
18	TxDOT / CTRMA	Loop 360	US 183 to US 290W
19	TxDOT	MOKAN	Georgetown - Austin
20	Capital Metro	Project Connect	
21	Capital Metro	Project Connect East Corridor Study	Central Austin - Elgin along US 290
22	Capital Metro	Project Connect NW Corridor Study	Central Austin - Mopac - US 183 - Liberty Hill
23	Capital Metro	Project Connect SW Corridor Study	Central Austin - IH 35 - San Marcos
24	City of Austin	Riverside Drive (Completed)	IH 35 - SH 71
25	TxDOT	RM 2222	RM 620 - Loop 1
26	CTRMA	RM 2222	Loop 360 to RM 620
27	TxDOT	RM 2243	US 183 - IH 35
28	TxDOT	RM 620	US 183 - SH 71
29	TxDOT / Hays County / Bastrop County	SH 21	San Marcos (SH 80) - Bastrop (SH 71)
30	Bastrop County	SH 21	Lee Co Ln - Cardinal Ln
31	TxDOT	SH 29	IH 35 - SH 95
32	Bastrop County / TxDOT	SH 71	Travis County Line/SH 130 to SH 21
33	Bastrop County	SH 95	Piney Creek to Phelan Rd
34	Bastrop County	SH 304	Trigg Rd to Caldwell County Line
35	City of Austin	South Lamar Boulevard Center (Underway)	Riverside Dr - Ben White Boulevard
36	TxDOT	US 79	IH 35 - Milam County Line
37	TxDOT	US 183	SH 71 - SH 130
38	Caldwell County	US 183 Luling relief route alternative	US 183 north of Luling to US 183/SH 80 south of Luling
40	TxDOT	US 290 E	SH 130 - SH 95
41	TxDOT	US 290 W	RM 12 - RM 1826
42	CAMPO	Regional Arterial Study	
43	TxDOT	US 281	Lampasas/Burnet County Line - Burnet/Blanco County Line

2040 PLAN

GET INVOLVED – GET MOVING

Appendices


2040 PLAN
GET INVOLVED – GET MOVING
Zegna
ST. JOHN
ESCADA
LAST CALL
Neiman Marcus


SPEED
LIMIT
65

Appendix A: Acronyms

ABIA	Austin-Bergstrom International Airport
ACC	Austin Community College
ADA	Americans with Disabilities Act
AIMHigh	Austin-area Incident Management for Highways
AMD	Advanced Micro Devices
AWAM	Anonymous Wireless Address Matching
BRT	Bus Rapid Transit
CAMPO	Capital Area Metropolitan Planning Organization
CAPCOG	Capital Area Council of Governments
CARTPO	Capital Area Regional Transportation Planning Organization
CARTS	Capital Area Rural Transportation System
CH4	Methane
CI	Congestion Index
CMP	Congestion Management Process
CMTA	Capital Metropolitan Transportation Authority (Capital Metro)
CO	Carbon monoxide
CO2	Carbon dioxide
CONRAC	Consolidated Rental Car Facility
CPTED	Crime Prevention Through Environmental Design
C-SAT	CAMPO Safety Assessment Tool
CTECC	Combined Transportation, Emergency and Communications Center
CTFIP	Central Texas Fuel Independence Project
CTR	Center for Transportation Research
CTR	Commute Trip Reduction
CTRMA	Central Texas Regional Mobility Authority
DAA	Downtown Austin Alliance
DBE	Disadvantaged Business Enterprise
DHHS	Department of Health and Human Services
DPS	Department of Public Safety
E+C	Existing + Committed
EJ	Environmental Justice
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
F	Fahrenheit

Acronyms (continued)

FEMA	Federal Emergency Management Agency
FEWS	Flood Early Warning System
FHWA	Federal Highway Administration
FM	Farm-to-Market (a state road designation)
FTA	Federal Transit Administration
FY	Fiscal Year
GIS	Geographic Information System
GISST	GIS Screening Tool
GPS	Global Positioning System
HERO	Highway Emergency Response Operator (Program)
HES	Hazard Elimination Safety (Program)
HRRR	High Risk Rural Roads (Program)
HSIP	Highway Safety Improvement Program
HUB	Historically Underutilized Businesses
ICM	Integrated Corridor Management
IH	Interstate Highway
ITS	Intelligent Transportation System
LCRA	Lower Colorado River Authority
LEP	Limited English Proficiency
LGC	Local Government Corporation
LSRD	Lone Star Rail District
MAD	Major Arterial Divided
MAP-21	Moving Ahead for Progress in the 21st Century Act
MAU	Major Arterial Undivided
MFI	Median Family Income
MNR	Minor Road
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NBI	National Bridge Inventory
NEPA	National Environmental Policy Act
NGV	Natural Gas Vehicle
NHTSA	National Highway Traffic Safety Administration
NOAA	National Oceanic and Atmospheric Administration
NOx	oxides of nitrogen

Acronyms (continued)

NPFN	National Primary Freight Network
NPIAS	National Plan of Integrated Airport Systems
O-D	Origins and Destinations
OAP	Ozone Advance Program
P-A	Productions and Attractions
PEL	Planning and Environmental Linkages
PEV	Plug-in Electric Vehicle
PMIS	Pavement Management Information System
ppb	parts per billion
PTI	Planning Time Index
RCA	Roadway Congestion Analysis
RHiNo	Road-Highway Inventory Network
RIF	Regional Infrastructure Fund
RM	Ranch-to-Market (a state road designation)
RMA	Regional Mobility Authority
ROW	Right of Way
RTA	Regional Toll Network Analysis
RTCC	Regional Transit Coordination Committee
RTD	Rural Transit District
RTP	Regional Transportation Plan
SDC	State Data Center
SH	State Highway
SHSP	Strategic Highway Safety Plan
SOC	State Operations Center
SOV	Single Occupant Vehicle
STIP	Statewide Transportation Improvement Program
STP-MM	Surface Transportation Program – Metropolitan Mobility
TAC	Technical Advisory Committee
TASP	Texas Airport System Plan
TAZ	Traffic Analysis Zone
TCEQ	Texas Council on Environmental Quality
TDI	Texas Department of Insurance
TDM	Travel Demand Management
TDM	Travel Demand Model
TERM	Transportation Emissions Reduction Measure

Acronyms (continued)

THPFN	Texas Highway Priority Freight Network
TIF	Tax Increment Financing
TIM	Traffic Incident Management
TIP	Transportation Improvement Program
TMA	Transportation Management Association
TMP	Transit Master Plan
TNC	Transportation Network Company
TPB	Transportation Policy Board
TPRFN	Texas Priority Rail Freight Network
TRENDS	Transportation Revenue Estimator & Needs Determination System
TSM	Transportation System Management
TTI	Texas A&M Transportation Institute
TWG	Transit Working Group
TxDOT	Texas Department of Transportation
TxWRAP	Texas Wildfire Risk Assessment Portal
UPRR	Union Pacific Railroad
UPWP	Unified Planning Work Program
US	United States (before a number indicates a state highway)
USDA	U.S. Department of Agriculture
UT	University of Texas
UTP	Unified Transportation Program
V2I	Vehicle-to-Infrastructure
V2V	Vehicle-to-Vehicle
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WPAP	Water Pollution Abatement Program
WRF	Weather Research and Forecasting

Appendix B: Glossary

Access management: Managing the access for roadway users entering or exiting adjacent developed land without significantly impacting safety conditions, traffic capacity, and vehicle speeds for other roadway users. Access management strategies, including design, control and spacing of driveways, curb cuts, turn lanes, parking lot circulation, public street connections, medians, and intersections, are most often applied to highways or major arterial streets.

Anonymous Wireless Address Matching (AWAM): AWAM uses Bluetooth readers to collect traffic data, by placing Bluetooth readers at selected intersections along a given corridor. When the reader at one location senses a Bluetooth device inside a vehicle and detects the same Bluetooth device again at the next location, it is recorded as a match, and the speed based on time and distance between devices is recorded.

Bicycle lane: A portion of a road that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicycles.

Bicycle path: A bikeway physically separated from motorized vehicle traffic by an open space or barrier within the highway right-of-way or within an independent right-of-way.

Bicycle route: A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number.

Bikeway: Any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Bus-only lane: A traffic lane on a street that is reserved for transit vehicles and designated by special signage and striping.

Bus Rapid Transit (BRT): A rapid transit system with exclusive, or semi-exclusive bus lanes for rubber tired vehicles, which incorporates features to improve efficiency and operating speed such as low floor, three (3)-door boarding, off-bus fare collection, fewer stops, queue jump lanes and signal priority that allow the bus to by-pass street congestion. This type of service is generally provided at high frequency all day.

Capital Area Council of Governments (CAPCOG): CAPCOG was organized in 1970 to serve local governments in its ten-county region, known as State Planning Region 12. CAPCOG is a regional planning commission organized under Chapter 391, Local Government Code, and is one of 24 within the state of Texas.

The primary focus of CAPCOG is to serve as advocate, planner, and coordinator of initiatives that, when undertaken regionally, can be more effective and efficient. These include emergency services, elderly assistance, law enforcement training, criminal justice planning, solid waste reduction, infrastructure development, and housing and economic development.

Capital Area Rural Transportation System (CARTS): CARTS is a Rural Transit District (RTD) which provides general transportation services throughout its nine-county district of Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, Travis, and Williamson Counties. CARTS is a public agency governed by a

Glossary (continued)

Board of Directors composed of one County Commissioner from each of the nine counties it serves, and has been providing community-based public transportation services since 1979. CARTS operates out of five intermodal stations located strategically throughout the region. Each offer a variety of transportation options from various carriers.

Capital Improvement Program (CIP): A jurisdiction or agency's funding plan that typically includes funds spent on infrastructure, maintenance, and improvement.

Capital Metropolitan Transportation Authority (CMTA): The Capital Metropolitan Transportation Authority provides public transportation services to an area that encompasses 535 square miles and includes a population of approximately 1,080,000. Capital Metro's service area includes the City of Austin, City of Manor, Village of San Leanna, City of Leander, City of Jonestown, City of Lago Vista, Village of Point Venture, Village of Volente, and some incorporated areas in Travis and Williamson Counties. In addition to federal grants and fare box revenues, Capital Metro is supported by a 1 percent sales tax, levied in the communities it serves. Membership in CMTA must be approved by voters within each jurisdiction.

Carpooling and vanpooling: Transportation services provided by public or private entities, or arranged by a group of individuals. In this mode, people organize a group to share a ride to work. Carpooling is typically organized at the individual level with carpool members working out all arrangements. Vanpooling is typically organized by a local company or transit agency that facilitates the organizational process.

Centers: Centers are areas that generally feature a mix of land uses that support transit, bicycling, and walking. The CAMPO Board has designated 59 Centers to use in development of the *2040 Plan*.

Centerline miles: Centerline miles are the total length of a road from its starting point to its end point. The number of lanes are not taken into consideration in this calculation.

Clean Air Act Amendments (CAAA): Federal legislation that requires each state with areas that have not met federal air quality standards to prepare a State Implementation Plan, or SIP.

Congestion Management Process (CMP): Monitors, evaluates, and manages congestion in the multimodal, regional transportation system. The intent of the CMP is to protect the region's investments in, and improve the effectiveness of, the existing and future transportation networks.

Congestion Mitigation and Air Quality Improvement Program (CMAQ): A funding program that helps implement projects designed to reduce emissions in non-attainment areas.

Congestion pricing: Varying user fees on road facilities by congestion levels to manage traffic volumes.

Glossary (continued)

Connectivity: Connectivity refers to the density of connections in a path or road network and the directness of links. A well-connected network has many short links, numerous intersections, and minimal dead ends. As connectivity increases, travel distances typically decrease, and route options increase, allowing more direct travel between destinations, and creating a more accessible system.

Conservation easement land: These are lands where the City of Austin has purchased conservation easements in order to manage use of the land. A conservation easement is a legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land in order to protect its conservation values.

Context Sensitive Design: Context Sensitive Design is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility.

This approach considers the total context within which a transportation improvement project will exist. Context Sensitive Design principles include the employment of early, continuous, and meaningful involvement of the public and all stakeholders throughout the project development process.

Dedicated sales tax: An increasingly popular financing method that allows local governments to use tax revenue income to match or leverage federal transportation funds for implementing transportation improvements. In high-growth areas, earmarked sales taxes can produce a secure revenue stream with which to support bond financing for certain kinds of projects (e.g., highway and transit infrastructure projects that may not generate sufficient operating income to cover construction costs). Dedication of sales tax for transportation purposes requires voter approval.

Department of Transportation (USDOT): Federal cabinet level agency headed by the Secretary of Transportation with responsibility for highways, mass transit, aviation, and ports. The USDOT includes the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA).

Developer impact fees: These fees occur after a highway or transit station has been built and is applied to the value (income potential) of adjacent land that becomes developable as a result of the improvements. These fees can be fixed on the value of the land or the completed development. Useful for development of transit centers near planned office buildings or highway interchanges constructed in the vicinity of land which is zoned for malls or shopping centers.

Disadvantaged Business Enterprise (DBE): Certification for a business wanting to receive federal funds. At least 51 percent of the business must be owned by women or minorities.

Electronic tolling system: Allows motorists to drive non-stop through designated electronic toll collection lanes. This requires attaching a special device (toll tag) to the vehicle that

Glossary (continued)

can be scanned by an electronic reader at the toll collection facility. Each motorist using this system is given an account that is paid for either by credit card, check, or cash. Each time the electronic tolling system is used, the amount of the toll is deducted from the user's account. Toll tags purchased from one agency in Texas can be used on all toll facilities in Texas.

Environmental Protection Agency (EPA): A federal agency charged with protecting the natural resources of the nation.

Express buses: Express buses provide high-speed, non-stop service between suburban communities and the central business district. Most operate only during peak hours, with trips inbound to the core in the morning and outbound to the suburbs in the afternoon. A few provide two-way service throughout the day. Express bus service may be coupled with park-and-ride lots and may also operate between suburban Centers.

Farm to Market (FM): An identifier for a road designated by the Texas Transportation Commission to be part of the statewide highway system. Normally associated as a two-lane road in rural areas, but also located in urban areas and can be a four-lane or six-lane divided roadway. The FM road designation is typically given to roads that are located east of US 281.

Freight rail: A railway dedicated to transporting cargo as opposed to passengers.

Grouped projects: Projects that do not need to be listed individually in the *2040 Plan*. These are typically projects that do not add capacity to the road or transit system such as safety improvements, operations, and maintenance activities. Bicycle and pedestrian projects are also grouped in regional transportation plans.

Growth management: The partial control of land use, transportation, and other public infrastructure planning decisions by state or local governments in order to restrict or redirect the growth of population and employment to specific areas, or to predetermined levels.

High-capacity transit: Bus rapid transit, light rail, or commuter rail transit service that can accommodate high levels of passengers and operates as limited-express to express type service. It has one, or both, of the following: dedicated lane/right-of way for at least a portion or transit priority. This service has fewer stops, operates at higher speeds, and offers more frequent service resulting in a higher carrying capacity.

High-Occupancy Toll (HOT): A fee that allows solo drivers to use HOV lanes.

High-Occupancy Vehicle (HOV): Vehicle having two or more occupants.

High-Occupancy Vehicle (HOV) Lanes: A lane in a roadway dedicated exclusively for the use of high occupancy vehicles and buses.

Glossary (continued)

Historically Underutilized Business (HUB): A business certified by the State as a sole proprietorship, partnership or joint venture corporation and is at least 51 percent owned by one or more persons who are minorities or women.

Incident Management (IdM): The detection, verification, response, removal/restoration of capacity, traffic management, and information to motorists in response to an incident that impedes transportation systems or causes sudden, increased travel demand. Incident management is typically coordinated between transportation facility and service providers, emergency service providers and communication service providers.

Intelligent Transportation System (ITS): A system that enables people and goods to move more safely and efficiently through a state-of-the-art, intermodal transportation system that includes information processing, communications, control, and electronics.

Inter-regional transportation: Inter-regional transportation service includes long distance transportation (typically passenger train and bus service) that connects two or more metropolitan areas.

Lane miles: Lane miles are the total length of a road from its starting point to its end point multiplied by the number of lanes. Ten miles of four-lane road are 40 lane miles.

Level of Service (LOS): A description of the quality of service of transportation facilities. For highways, "A" means traffic is flowing freely and "E" or "F" means the highway is very congested. Highway LOS can be determined based on density (average number of passenger cars located in a single lane within a one mile section), speed (the average attainable speed in miles per hour), or maximum service flow (average number of passenger cars that pass by every hour in one lane).

Limited-access roads: Roads with limited or no access to adjacent properties (no driveways). Highways that can only be accessed via on- and off-ramps are limited-access roads.

Local option fuel tax: With State Legislature approval, municipalities can tax fuel purchases along with the State and federal governments.

Local bus: The dominant mode of public transportation in urban transit service areas. In general, they are large on-street vehicles that can carry many riders and are driven by one person. They typically offer two-way service, with stops spaced every two or three blocks. The average operating speed is usually between 10 and 25 miles per hour.

Lone Star Rail District (LSRD): An agency established in 2002 to plan, develop, operate, and maintain intermodal and intercity passenger rail facilities in the Austin-San Antonio Corridor.

Managed lanes: Managed lanes are typically limited-access road lanes which employ one or more strategies to manage congestion, maximize capacity, enhance freight or

Glossary (continued)

transit operations, or generate revenue. Managed lanes include toll express lanes, High Occupancy Vehicle Lanes, Bus-Only Lanes, and High Occupancy Toll Lanes.

Metropolitan Planning Organization (MPO): The organizational entity established by federal law to provide a forum for cooperative transportation decision-making for the metropolitan area containing a population of 50,000 people or more. Major responsibilities include the development of transportation plans and programs and authorization of the use of federal transportation dollars.

Minority-owned Business Enterprise (MBE): A business whose ownership comprises at least 51 percent minorities.

Moving Ahead for Progress in the 21st Century (MAP-21): This is the current law authorizing highway, highway safety, transit, and other federal surface transportation funding programs for FY 2013-2014.

Municipal Utility District (MUD): A political subdivision of the State of Texas authorized by the Texas Commission of Environmental Quality (TCEQ) to provide water, sewage, drainage, and other services within the MUD boundaries. A majority of property owners in the proposed district petitions to create a MUD. The publicly elected Board of Directors manages and controls the MUD, subject to the continuing supervision of the TCEQ. The Board establishes policies in the interest of its residents and utility customers and may adopt and enforce all necessary charges, fees, and taxes in order to provide district facilities and service.

National Highway System (NHS): A system developed by the US Department of Transportation in cooperation with the states, local officials, and metropolitan planning organizations (MPOs) that identifies major intermodal highways that connect to major intermodal facilities (ports, airports, rail, transit, etc.) and are important to the nation's economy, defense, and mobility.

Nitrogen Oxides (NOx): A pollutant produced during fossil fuel combustion that contributes to the formation of ground-level ozone.

North American Free Trade Agreement (NAFTA): An agreement between the United States, Canada, and Mexico which promotes means for improved and increased free trade between these three countries.

Ozone (O3): Ground level or "bad" ozone is not emitted directly into the air, but is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOC. Breathing ozone can trigger a variety of health problems, particularly for children, the elderly, and people of all ages who have lung diseases such as asthma. Ground level ozone can also have harmful effects on sensitive vegetation and ecosystems. (Source: USEPA)

Glossary (continued)

Paratransit: Complementary transit service for people who cannot access fixed-route service. It is generally offered in vans or sedans.

Park-and-Ride Lot: Any designated parking lot that serves express bus, passenger rail, local bus, or vanpool and carpool drop-off and pick-up. They are typically located outside the central urban area.

Parking management: A transportation demand management technique that manages parking supply as a strategy for discouraging single occupant vehicle driving and encourages use of ridesharing, transit, biking, and walking.

Project Groupings: Roadway Preventative Maintenance and Rehabilitation, Bicycle and Pedestrian Projects and Programs, Bridge Replacement and Rehabilitation and Railroad Grade Separations, Safety and Operations Projects and Programs, Public Transportation Operations and Maintenance.

Public Participation Plan (PPP): Established guidelines developed to disseminate information to all metropolitan area citizens, groups, agencies, and transportation providers to assure their input in the decision making process of transportation programs, projects, etc. for the CAMPO area.

Railhead: The end of a rail spur where trains are serviced, stored, or loaded and unloaded.

Ranch to Market (RM): Identifier for a road designated by the Texas Transportation Commission to be part of the statewide highway system. Normally associated as a two-lane roadway in rural areas, but also located in urban areas and can be a four-lane or six-lane divided roadway. The RM roadway designation is typically given to roads that are located west of US 281.

Rapid bus: Rapid bus is a form of semi-rapid, limited-stop service using rubber-tired vehicles on existing city streets in combination with intelligent transportation system (ITS) to speed up buses through congested locations and to provide real time trip information and better amenities at bus stops. The stops are typically spaced 0.6 to 1 mile apart. This type of service is generally provided at high frequency all day.

Regional Mobility Authority (RMA): A regional mobility authority is the local entity responsible for overseeing the development of tollway projects.

Revolving loan fund: Financing tool that recycles funds by providing loans, receiving loan repayments, and then providing further loans.

Right of Way (ROW): Public land reserved for locating infrastructure such as a roadway or a utility line.

Shared road: A road which is open to both bicycle and motor vehicle travel. This may be an existing road, street with wide curb lanes, or road with paved shoulders.

Glossary (continued)

Shared-use path: A path physically separated from motor vehicle traffic by an open space barrier and either within the highway right-of-way or within an independent right-of-way. Most shared-use paths are designed for two-way travel.

Single Occupant Vehicle (SOV): Any vehicle that contains just one person, the driver.

Standard Metropolitan Statistical Area (SMSA): A Census Bureau delineation for major metropolitan areas in the U.S.

State Data Center (SDC): The official repository of census data and demographic data for the state of Texas.

State Highway (SH): Roads, streets, and highways maintained by the state.

State Transportation Improvement Program (STIP): A staged, multi-year statewide, intermodal program of transportation projects which is consistent with the Statewide Transportation Plan and planning processes and metropolitan plans, TIPs, and processes.

Statewide Transportation Plan: The official statewide, intermodal transportation plan that is developed through the statewide transportation planning process.

Streetcar: A tram or light rail vehicle, often a single car, operating on city streets. Streetcars are typically smaller, lighter vehicles, with lower operating speeds than traditional light rail, and usually operate in shared lanes with traffic.

Surface Transportation Program (STP): A federal program designed to create flexible funding for transit and highway construction.

Surface Transportation Program – Metropolitan Mobility (STP MM): A funding category used to address transportation needs within the metropolitan area boundaries of MPOs having urbanized areas with populations of 200,000 or greater.

Tax Increment Financing (TIF): A financing tool used to publicly finance needed public improvements and enhanced infrastructure in a defined area. The intended purpose is to promote the viability of existing businesses, and attract new commercial enterprises. Only city governments may initiate tax increment financing.

Texas Department of Transportation (TxDOT): The State agency responsible for construction and maintenance of all interstate, U.S, state highways, ranch-to-market (RM) and farm-to-market (FM) roads in Texas.

Toll road: A road that requires a toll from users.

Traffic Analysis Zone (TAZ): The smallest geographically designated area used for analysis of transportation activity such as data collection and travel movements within, into, and out of the urban area.

Transit-Oriented Development (TOD): Dense development around mass transit stations that provides a range of destinations within walking distance, usually including multifamily homes, shops, and workplaces.

Glossary (continued)

Transportation Alternatives Program (TAP): A statewide program administered by the Texas Department of Transportation that provides federal funds for non-traditional improvements adjacent to or within the right of way of a transportation facility. TAP focuses on non-traditional transportation projects, including on- and off-road pedestrian and bicycle facilities, infrastructure for non-driver access to public transportation, projects that enhance mobility, and Safe Routes to School infrastructure projects.

Transportation Emission Reduction Measure (TERM): Transportation projects designed to reduce on-road mobile source emissions by reducing vehicle use, improving traffic flow, or reducing congested conditions. General categories of TERMS include intersection improvements, traffic signal synchronization improvements, bicycle and pedestrian facilities, high-occupancy vehicle lanes, major traffic flow improvements, park and ride lots, intelligent transportation system (ITS), and transit projects.

Transportation Improvement Program (TIP): A document prepared by an MPO that identifies funding for specific transportation projects and studies to be implemented in an area over a four-year period.

Transportation Management Area (TMA): Term for all urbanized areas with a population of over 200,000.

Transportation Policy Board (TPB): The governing body of CAMPO consisting of locally elected officials and representatives from the Texas Department of Transportation and Capital Metro.

Transportation Systems Management (TSM): A program to reduce congestion and improve traffic flow through traffic signal synchronization, freeway operations improvements (e.g., changeable message signs and ramp metering), and incident management (clearing accidents and breakdowns quickly). Other methods can include bus pullouts, intersection improvements and queue jumper lanes, where appropriate.

Travel Demand Management (TDM): Achieving greater transportation system efficiency by managing or decreasing the demand for auto-related travel. This typically includes alternatives to single occupant vehicles (transit, carpool, vanpool), incentives/disincentives (congestion pricing, HOV lanes), and alternative work environments (teleworking, flex scheduling).

Unified Planning Work Program (UPWP): An annual work plan prepared by the MPOs describing transportation planning activities and funding sources that will occur within their specific jurisdiction.

Unified Transportation Program (UTP): A ten-year planning document that guides and controls project development for TxDOT in a feasible and economical manner.

Volatile Organic Compounds (VOC): Vaporous chemicals from fossil fuel combustion, solvents, paints, glues, and some dry cleaning processes that contribute to ozone formation.

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Appendix C: CAMPO 2040 Plan Policies

These are the policies adopted by the CAMPO Transportation Policy Board for the *CAMPO 2040 Regional Transportation Plan* (*2040 Plan*). This appendix also includes administrative policies related to amendment of the *2040 Plan*.

PLAN COMPLIANCE AND FUNDING POLICIES

Policy 1 Target 50 percent of available CAMPO discretionary federal funding (STP-MM) to support development of the mixed-use activity centers indicated on the CAMPO Centers Map. (The same project may address both the 15 percent bicycle and pedestrian, and the 50 percent Centers target policies.)

Policy 2 Target 15 percent of available CAMPO discretionary federal funding (STP-MM) to bicycle and pedestrian projects through the CAMPO TIP process. (The same project may address both the 15 percent bicycle and pedestrian, and the 50 percent Centers target policies.)

CONGESTION MANAGEMENT AND TRANSPORTATION DEMAND MANAGEMENT POLICIES

Policy 3 Use transportation investments to support continued reduction of per capita vehicle miles traveled.

Policy 4 Consider transportation improvements that increase person-carrying capacity, rather than vehicle-carrying capacity of the regional transportation system.

Policy 5 Expand the public, and other, transportation systems to keep up with the region's mobility needs over time.

ENVIRONMENTAL POLICIES

Policy 6 Develop a transportation system that minimizes impacts on the 100-year flood plain, aquifer recharge and contributing zones, and other environmentally sensitive areas while providing for regional mobility.

Policy 7 Reduce vehicle emissions through implementation of transportation investments and other activities.

Policy 8 Develop a transportation system that incorporates context-sensitive design principles into the design of transportation projects.

ROADWAY AND TOLLING POLICIES

Policy 9 Facilitate preservation of right-of-way that is adequate to accommodate the planned functional classification of the roadway as shown in the CAMPO long range plan. Adequate right of way shall be determined by locally-adopted standards or engineering discretion, or along state system rights-of-way, consistent with standards promulgated by TxDOT, and should generally fall within the width ranges shown in the CAMPO Plan.

Policy 10 Any existing roadway to which additional tolled capacity is added shall continue to be maintained and improved and to provide the same amount or more non-tolled capacity as the roadway currently provides. To the extent that it is within the authority of the toll operator and the CAMPO Transportation Policy Board, the non-tolled capacity shall have the same number or fewer traffic control devices as the current roadway except where law and/or safety requires otherwise.

Policy 11 The initial operation of any Central Texas Regional Mobility Authority (CTRMA) tolled facility shall allow non-tolled use by public buses and paratransit.

BICYCLE AND PEDESTRIAN POLICIES

For the purposes of these policies, local governments are strongly encouraged to consider including bicycle and pedestrian accommodations as part of roadway resurfacing and maintenance projects.

Policy 12 Encourage implementation of pedestrian facilities with new construction and major rehabilitation of regionally significant roadways at the major arterial functional classification or higher. Consideration of the need for such facilities and their implementation should be considered in the context of local government needs and long-term community goals.

Policy 13 Encourage implementation of bicycle facilities with resurfacing, new construction, major rehabilitation, and other maintenance projects of regionally significant roadways at the major arterial functional classification or higher. Consideration of the need for such facilities and their implementation should be considered in the context of local government needs and long-term community goals.

FREIGHT POLICIES

Policy 14 Consider reducing the cost of moving goods and enhancing the region as an effective freight transportation center as priorities when evaluating projects for funding under the CAMPO Transportation Improvement Program.

CAMPO 2040 Plan Policies (continued)

Policy 15 Work with local jurisdictions to encourage clustering of shipping activities near freight transportation termini, modal shifts, and accommodating the safe and efficient flow of heavy duty vehicles.

LAND USE COORDINATION POLICIES

Policy 16 Support development of high density, mixed-use activity Centers in the locations shown on the CAMPO Centers map.

CAMPO 2040 Plan Amendment Policies and Procedures

Amendments

Amendments to the *CAMPO 2040 Plan* can be considered between major plan updates. Requests should be submitted in writing to the CAMPO Executive Director and must include:

- A complete description of the amendment. The description should identify the implementing jurisdiction, where the item appears in the *CAMPO 2040 Plan*, and must fully describe the change being proposed and why it is necessary.
- Detailed maps showing the location and effect of the amendment;
- Any technical information needed to show that the amendment will not have an adverse impact on regional travel; and
- Any financial information needed to show how costs beyond the revenue forecast will be accommodated.

CAMPO staff will review the request and, if it meets all qualifying criteria, forward it to the Transportation Policy Board for their consideration. Amendment requests will be forwarded to the Transportation Policy Board at least semi-annually.

Administrative Amendments

Administrative amendments do not require action by the Transportation Policy Board. If an administrative amendment is approved by the Executive Director, the amendment will be available on the CAMPO website and will, for informational purposes, be provided to the Transportation Policy Board prior to their next meeting.

The following are classified as administrative amendments under the *CAMPO 2040 Plan*:

- Decreases to year of expenditure cost of projects;
- Increases to the year of expenditure cost of projects, where the cost increase will be offset by decrease in cost of another project, or by an increase in reasonably assumed revenues;
- Changes in anticipated let-year or open-year of projects;

- Modifications to the project list to allow for construction of interim improvements to a larger project, as long as the modifications do not materially change the project's intended function, nature, costs, or environmental impact; and
- Corrections to typographical errors.

Plan Components Which Do Not Require Amendment

Minor amendments to descriptive text (exclusive of project descriptions), including background data, performance information, and other content that is advisory or informational in nature, does not require formal amendment of the *CAMPO 2040 Plan*.

Amendments that Require Formal Plan Amendment Process

All other plan amendments require a formal plan amendment process as described in CAMPO's *Public Participation Plan*. For more information, visit www.campotexas.org.

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Appendix D: Top 50 Congested Roadway Segments During the AM Peak Period

Rank	Highway	Travel Direction	Total Delay (veh-hr)	Start	End	Segment Length (Miles)
1	IH 35	S	1337.39	US 290 E	Airport Blvd	2.39
2	IH 35	N	1152.63	SH 45	Slaughter Ln	3.65
3	IH 35	N	1023.93	Slaughter Ln	E William Cannon Dr	1.71
4	US 183	S	980.87	Anderson Mill Rd	Duval Rd	3.48
5	Loop 1/Mopac Expy	S	974.2	W Anderson Ln	RM 2222	1.52
6	IH 35	N	867.67	E Ben White Blvd	E Oltorf St	1.33
7	IH 35	N	547.32	E Oltorf St	E Riverside Dr	1.03
8	IH 35	S	526.77	US 183	US 290 E	1.17
9	IH 35	S	461.74	E Rundberg Ln	US 183	1.51
10	Loop 1/Mopac Expy	N	461.26	Loop 360/Capital of Texas Hwy	Bee Caves Rd	1.97
11	IH 35	N	427.45	E William Cannon Dr	E Ben White Blvd	2.33
12	IH 35	S	421.83	Airport Blvd	E 26th St	2.69
13	IH 35	S	407.48	Parmer Ln	Braker Ln	2.21
14	IH 35	N	390.84	E Riverside Dr	E 1st St	0.92
15	Loop 1/Mopac Expy	S	358.18	RM 2222	W 45 St	1.42
16	IH 35	S	341.22	SH 45	Wells Branch Pkwy	2.91
17	IH 35	S	337.85	Wells Branch Pkwy	Parmer Ln	2.27
18	Loop 1/Mopac Expy	S	328.14	US 183	Spicewood Springs Rd	1.04
19	US 290 E	W	327.95	Decker Ln	Springdale Rd	3.33
20	IH 35	S	325.62	FM 1431	US 79	2.86
21	IH 35	S	304.06	Braker Ln	E Rundberg Ln	1.48
22	Loop 1/Mopac Expy	N	224.4	US 290 W	Loop 360/Capital of Texas Hwy	2.03
23	E 38th St	W	223.78	IH 35	Guadalupe St	2.26
24	Loop 1/Mopac Expy	N	213.68	W William Cannon Dr	US 290 W	2.35
25	US 183	S	210.11	Duval Rd	Mopac Expy N	2.86

Rank	Highway	Travel Direction	Total Delay (veh-hr)	Start	End	Segment Length (Miles)
26	IH 35	S	198.03	US 79	SH 45 N	2.58
27	Loop 360/Capital of Texas Hwy	N	195.4	Loop 1/Mopac Expy	Bee Caves Rd	3.72
28	FM 1626	S	184.78	Manchaca Rd	FM 967	4.83
29	Loop 1/Mopac Expy	S	170.22	W Parmer Ln	Burnet Rd	1.15
30	RM 620	W	164.09	Murfin Rd	Aria Dr	3.62
31	RM 2244/Bee Caves Rd	E	161.96	N Cuernavaca Dr	Loop 1/Mopac Expy	3.31
32	SH 71	W	160.56	FM 973	US 183	3.17
33	US 290 W	W	158.77	Loop 1/Mopac Expy	SH 71	3.04
34	Mays St	N	154.47	Gattis School Rd	US 79	1.75
35	US 183	S	151.24	W Whitestone Blvd	RM 620	4.21
36	RM 620	W	148.4	IH 35	SH 45 N	5.86
37	US 290 W	E	146.24	El Rey Blvd	SH 71	1.32
38	Loop 360/Capital of Texas Hwy	N	144.85	US 290 W	Mopac Expy S	0.72
39	Loop 360/Capital of Texas Hwy	S	144.75	RM 2222	Westlake Dr	1.97
40	IH 35	N	130.38	E 1st St	E 15th St	0.98
41	RM 620	E	127.11	SH 45	IH 35	5.93
42	Mays St	S	122.47	Old Setlers Blvd	US 79	1.22
43	US 290 W	E	122.32	SH 71	S Mopac Expy	3.04
44	US 183	N	119.31	SH 71	Montopolis Dr	1.82
45	RM 620	W	114.57	Anderson Mill Rd	RM 2222	5.07
46	US 183	N	112.55	FM 969	Springdale Rd	2.4
47	US 183	S	110.97	Springdale Rd	FM 969	2.4
48	Loop 360/Capital of Texas Hwy	S	109.05	US 183	Spicewood Springs Rd	1.43
49	Loop 360/Capital of Texas Hwy	S	107.19	Spicewood Springs Rd	RM 2222	2.34
50	US 290 W	E	102.57	Trautwein Rd	RM 1826	7.82

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Appendix E: Top 50 Congested Roadway Segments During the PM Peak Period

Rank	Highway	Travel Direction	Total Delay (veh-hr)	Start	End	Length (Miles)
1	IH 35	S	4676.51	E 26th St	15th St/Enfield Rd	2.41
2	IH 35	S	3826.51	Airport Blvd	E 26th St	2.69
3	IH 35	S	1944.65	15th St/Enfield Rd	E 1st St	0.98
4	IH 35	N	1926.15	Riverside Dr	E 1st St	0.92
5	IH 35	N	1395.34	E 1st St	15th St/Enfield Rd	0.98
6	US 183	N	1352.53	Loop 1/Mopac Expy	Duval Rd	2.86
7	IH 35	N	1315.90	15th St/Enfield Rd	E 26th St	2.53
8	IH 35	N	1188.68	Oltorf St	Riverside Dr	1.04
9	IH 35	N	1121.04	Braker Ln	Parmer Ln/FM 734	2.21
10	IH 35	S	1120.00	US 290 E	Airport Blvd	2.39
11	IH 35	N	984.29	E 26th St	Airport Blvd	2.87
12	Loop 1/Mopac Expy	N	955.36	Windsor Rd	W 35th St	1.06
13	Loop 1/Mopac Expy	S	942.23	W 45th St	W 35th St	1.08
14	Loop 1/Mopac Expy	N	768.91	W 5th St	15th St/Enfield Rd	0.71
15	Loop 1/Mopac Expy	S	745.17	RM 2222	W 45th St	1.42
16	Loop 1/Mopac Expy	S	740.60	W 35th St	Windsor Rd	0.93
17	Loop 1/Mopac Expy	S	732.75	RM 2244/Bee Caves Rd	Loop 360/Capital of Texas Hwy	2.03
18	Loop 360/Capital of Texas Hwy	S	701.39	RM 2244/Bee Caves Rd	Loop 1/Mopac Expy	3.72
19	IH 35	S	680.13	E 1st St	Riverside Dr	0.92
20	IH 35	S	653.12	Riverside Dr	Oltorf St	1.03
21	IH 35	N	649.77	Airport Blvd	US 290 E	2.51
22	Loop 1/Mopac Expy	S	627.86	W 5th St	RM 2244/Bee Caves Rd	1.12
23	Loop 1/Mopac Expy	N	594.39	W 35th St	W 45th St	1.02
24	Loop 1/Mopac Expy	N	562.03	Windsor Rd	15th St/Enfield Rd	0.45
25	US 183	S	513.18	Springdale Rd	FM 969/Martin Luther King Jr Blvd	2.39

Rank	Highway	Travel Direction	Total Delay (veh-hr)	Start	End	Length (Miles)
26	35th St/38th St	E	465.41	Guadalupe St	IH 35	2.23
27	Loop 1/Mopac Expy	N	455.04	RM 2244/Bee Caves Rd	W 5th St	1.12
28	Loop 1/Mopac Expy	S	450.65	15th St/Enfield Rd	W 5th St	0.71
29	Loop 360/Capital of Texas Hwy	N	434.39	RM 2222	Spicewood	2.34
30	RM 620	E	402.11	RM 2222	Anderson Mill Rd	4.01
31	IH 35	N	394.47	E Ben White Blvd	Oltorf St	1.33
32	35th St/38th St	W	373.40	IH 35	Guadalupe St	2.26
33	Loop 1/Mopac Expy	N	349.64	W 45th St	RM 2222	1.04
34	US 290 W	W	341.80	Loop 1/Mopac Expy	SH 71	3.04
35	Loop 1/Mopac Expy	S	324.15	15th St/Enfield Rd	Windsor Rd	0.52
36	IH 35	N	322.52	Wells Branch Pkwy	SH 45 N	2.81
37	Loop 1/Mopac Expy	N	318.67	RM 2222	Anderson Ln	1.87
38	IH 35	S	298.53	Oltorf St	E Ben White Blvd	1.35
39	Loop 1/Mopac Expy	S	296.07	Anderson Ln	RM 2222	1.52
40	IH 35	N	284.26	SH 45	SH 79	2.67
41	US 183	N	280.88	RM 620/SH 45	W Whitestone Blvd	4.35
42	IH 35	N	264.47	Parmer Ln/FM 734	Wells Branch Pkwy	2.27
43	IH 35	S	263.63	E Ben White Blvd	William Cannon Dr	2.33
44	US 183	N	246.64	Burnet Rd	Loop 1/Mopac Expy	0.82
45	IH 35	S	244.06	William Cannon Dr	Slaughter Ln	1.72
46	US 183	N	235.96	Montopolis Dr	FM 969/Martin Luther King Jr Blvd	3.01
47	US 183	N	233.55	Duval Rd	Anderson Mill Rd	3.44
48	SH 71	E	221.77	Montopolis Dr	US 183	1.85
49	Loop 360/Capital of Texas Hwy	N	218.97	Westlake Dr	RM 2222	1.97
50	US 183	S	210.48	W Whitestone Blvd	RM 620/SH 45	4.21

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Appendix F: The CAMPO 2010 Model

This appendix is a summary of the CAMPO Travel Demand Model Validation Report dated June 2014. The report was developed by the firms of CDM Smith, AECOM, and ATKINS as part of the CAMPO 2010 Model Update. It covers the following:

- Model updates
- Overview of the CAMPO study area
- Model inputs
- Overview of model structure
- Feedback and validation

2010 Model Updates

The model has been updated since the CAMPO 2005 Regional Travel Demand Model to include the following major changes:

- The addition of Burnet County to the study area
- An increase in the number of traffic analysis zones (TAZ) for the original five-county portion of the model
- Application of a full time of day model structure with AM, Mid-Day (MD), PM and Night (NT) periods
- Implementation of TransCAD's GISDK scripting language to perform trip generation and trip distribution
- Use of a generalized cost impedance consistent through the model stream for trip distribution, mode choice, and traffic assignment

Overview of CAMPO Study Area

The 2010 Model covers a six county region that includes Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson Counties. The addition of Burnet County is new to the 2010 Model.

Model Versions

The 2010 Model is based on the same data collection effort that was used to estimate the 2005 Model. Additional information from the more recent on-board transit survey was used in calibration of the mode choice and transit assignment models as part of this update. Count data used for the 2010 validation included the 2010 urban counts and saturation counts, as well as transaction data from the toll facilities.

Model Overview

This section provides an overview of the 2010 Model structure with additional information on the trip generation, trip distribution, mode choice and traffic assignment models in later sections. In addition to the model structure, information on model inputs used for the 2010 Model is provided.

Model Structure

The 2010 Model takes the general structure of a trip based model with a daily trip generation, trip distribution, and mode choice. Following mode choice the trip tables are disaggregated into four periods (AM, MD, PM, and NT) and assigned to period specific networks.

Model Inputs

The inputs for the 2010 Model were developed prior to validation; with the exception of the Burnet County inputs, which were developed using the stand-alone 2005 Burnet County Model that had been updated to 2010.

Traffic Analysis Zones (TAZs)

There are 2,102 internal zones distributed among the six counties with an additional 59 external zones, for a total of 2,161 TAZs. In addition to the zonal demographics discussed below, each TAZ is identified with the respective county, school district, subarea for matrix aggregation and an area type factor. The

area type is based on a density factor using the TAZ population and employment and then grouped by ranges.

For each of the 2,102 internal zones, a number of demographic variables were developed by CAMPO staff including the total population in households, number of occupied households, group quarters population (populations not demonstrating common travel characteristics such as prisons), and employment by basic, retail, and service. In terms of total demographics, Travis County is the focal point of the region with over half of the population and employment. Williamson County is the second largest county in both population and employment.

Highway Network

The 2010 Model utilizes a master network database design and includes 18,527 records, or links that equates to a total of 8,557 roadway miles traversing the six county region. The network displays significant detail in the urbanized areas and as the model becomes more rural, the network density decreases consistent with zonal size.

Transit Network

The transit system within the CAMPO region comprises three separate agencies; Texas State University (TSU) which provides coverage for San Marcos and the Texas State University, Capital Area Rural Transportation System (CARTS) providers for the rural regions within the CAMPO area, and CapMetro which provides service to the greater Austin area. These agencies provide six modes of public transit including; local bus, express bus, the University of Texas shuttle system, commuter rail, and 2 premium transit modes as placeholders for future year scenarios.

Traffic Counts

Traffic counts are essential to the development of the CAMPO Model. Counts provide the ground reality needed to ensure the model is forecasting the most accurate data. Traffic counts were collected in the fall of 2010 for the CAMPO region by TxDOT. CAMPO aggregated the counts into the four time periods that were developed for the enhanced CAMPO travel demand model. These periods are defined as AM (6 a.m. – 9 a.m.), MD (9 a.m. – 3:30 p.m.) PM (3:30 p.m. – 6:30 p.m.), and NT (6:30 p.m. – 6 a.m.). The collection of Urban counts (collected annually) and Saturation counts (collected every five years), depict the average weekday traffic (M – Thu). There are roughly 960 Urban counts and 3,500 Saturation counts for a total of 4,460 counts within the region. Additional count estimates were provided by the Central Texas Regional Mobility Authority (CTRMA) for the toll roads that they manage.

External Models

The external models were developed from the 2005 External Station Survey. The development of the 2010 externals involved using the 2010 counts along with the 2005 survey data for the splits between autos and trucks and the distribution of those trips within and thru the CAMPO region. Due to the expansion of the model area, the 2005 survey could not be utilized exclusively for the 2010 development. The expansion included the addition of Burnet County on the northwest side of the region, which had the effect of "moving" several stations out from Travis and Williamson county boundaries to the other side of Burnet County and adding a new station to the southeast of San Marcos.

To compensate for these additions and station movements, the external thru movements were adjusted downwards and the external local movements were then adjusted to match the station volumes at their new locations. For the other stations in Burnet Count, turning movements were developed based on 2010 counts to assist in determining the movements from the remaining external stations. After the initial development of the Burnet County externals, the model assignment output was then used to evaluate the flows to the counts and making final adjustments for the external thru movements. For the 2010 external thru

movements' matrix, the 2005 external thru matrix was adjusted to include the addition of Burnet County, as described previously, and the new station southeast of San Marcos.

After the matrix was adjusted and 2010 external thru target values for auto and truck trips were established, the adjusted matrix and a table of the target values were balanced by applying a doubly-constrained growth factor, known as Fratar Balancing, for the creation of the 2010 external thru matrix with cores for auto and truck trips.

Input Development of Burnet County

One of the tasks to update the CAMPO model to 2010 conditions was to expand the model area boundary to include Burnet County. This task included expanding the TAZ coverage and external stations, populating the TAZs with the required 2010 attribute data and developing the expanded network and attributes.

Overview of Model Structure

Trip Generation

Trip generation models estimate the number of trip ends generated in and attracted to each traffic analysis zone based on the characteristics of each zone. Trip productions and trip attractions are estimated for 13 trip purposes including home based, non-home based, and external purposes and listed below.

1. Home Based Work (HBW)
2. Home Based Non-Work – Retail (HBNW-R)
3. Home Based Non-Work – Other (HBNW-O)
4. Non-Home Based Work (NHBW)
5. Non-Home Based Other (NHBO)
6. Primary Education (ED1)
7. Secondary Education (ED2)
8. University of Texas (UT)
9. Airport (AIR)
10. Truck/Taxi (TR_TX)
11. Non-Home Based – External (NHB-EX)
12. External-Local – Auto (EXLO_A)
13. External-Local – Truck (EXLO_T)

Methodology of the CAMPO trip generation model remained the same as previously implemented scripts. Trip productions are calculated using cross-classification equations of households by size, income, and workers and trip attractions are calculated using cross-classification equations of employment by area type, where both sets of models are applied to the input demographic data by zone.

Trips per Household

Trips per household are computed and compared for consistency with the 2005 CAMPO model. The model reports approximately 10.4 person trips per household based on approximately 667,000 households and 6.93 million person trips. This value is within the range of recommended guidelines, although on the high side. Other trip statistics include the employment to population ratio. This value decreases in 2010 compared to 2005 suggesting that employment is not increasing as fast as population for the region.

Trip Distribution

Trip distribution models distribute trip ends between all zones. The distribution of trip ends in the CAMPO Model is implemented through GISDK scripts. First highway networks and impedance skims are created. Composite travel time is minimized and all highway impedances used in trip distribution and mode choice are skimmed to maintain consistency through all model steps. In order to model the tolling characteristics of drivers with different trip purposes the trip purposes of HBW, HBO, and NHB for single and high occupancy vehicles are carried through assignment. The final state of trip distribution step is the TransCAD based trip distribution procedure performed by use of the gravity model.

Average Trip Length

The calibrated friction factors were finalized after comparing the observed average trip lengths with the modeled distributions. The observed data is obtained from 2005 Home Interview Survey. The resulting trip length distributions match well with observed data and fall within close range of the observed targets.

Mode Choice

This section describes refinements to the mode choice model and supporting processes, included transit networks, path building, and assignment.

Model Structure

While the structure of the model remained the same, the model was updated to a new zone system and an updated demographic dataset. Several aspects of the model such as transit skimming, transit accessibility, and target values were updated.

Transit Times Computation

In order to improve the accuracy of the model, and in particular transit assignment, it is important that the travel times in the model accurately represent real world travel times. Bus routes schedules from Capital Metro's website were used as observed travel times. Routes in the model which corresponded with scheduled routes were used to check the bus speeds. Instead of using a lookup table to determine transit speed on a link, a delay function was implemented that added delay on the links to account for pick-up/drop-off of passengers and acceleration/deceleration of the vehicle in that process. The delays were calibrated by area type, facility type, and transit mode. So, on a given link, a local bus would experience the same or more delay than an express bus as it stops more frequently.

Since the transit time would be a function of highway times, a comparison of modeled highway times with available observed data was done to make sure the underlying highway times are reasonable and that the delays would capture only delays due to transit operations. Overall, modeled times are determined to be reasonable for transit delays calibration because transit delays are calibrated to arterials and highway segments will not experience any delay. Note that the transit travel times are dependent on highway times. If the highway travel times in the model are changed then the transit delays may have to be recalibrated to match scheduled travel times.

Transit Accessibility

In order to improve transit accessibility measures, a parcel level demographic file was added to the model. The model calculates transit accessibility during the peak and off peak periods within a short (0.25 miles) and long (0.5 miles) radius around each transit stop. The parcels layer is more detailed, containing over 600,000 parcels within the 2,000 TAZ study area. Using the parcels layer, total population within the short and long radius of transit can be calculated.

Using the parcel level data allows for more accurate analysis on how well the transit system is serving the population.

Transit Assignment Results

Route boardings from model transit assignments were observed as reasonably accurate by mode. It should be noted that the model identifies peak and off-peak by trip purpose and that it is not necessarily true peak and off-peak meaning that the peak reflect the home based work trip purpose and the off-peak reflects all other trip purposes. To make sure the model can replicate the boardings by geography, transit assignments were summarized by several route groups based on the areas the routes served.

Time of Day Model

The 2010 Model utilizes a time of day structure where the trip generation, distribution, and mode choice are applied to daily trips. Post mode choice, the auto trip tables are disaggregated into the four periods and assigned to period specific network parameters. The outputs of the four assignments are aggregated

to create the daily (24 hr) traffic volumes.

This approach to time of day modeling is considered the state of the practice and improves the sensitivity of the model to congestion in the peak periods. With the exception of the night period, the AM, MD, and PM periods are within 5 percent of observed counts overall.

Traffic Assignment

Traffic assignment is the routing or assignment of origin-destination trips along paths identified in the highway network. This section focuses on the highway assignment structure and parameters including the implementation of tolling in traffic assignment. Transit assignment is a component of the 2010 Model using the pathfinder methodology consistent with transit skimming methodology but is not discussed in this section as no updates were made to transit assignment methodology in the 2010 Model update.

Model Structure

The 2010 Model uses the user equilibrium assignment technique which spreads traffic in an iterative process based on travel times modified by capacity restraint, where no travelers can improve their travel times by shifting routes. Specifically, the 2010 Model uses a Multi-Modal Multi-Class (MMA) user equilibrium assignment technique which has the ability to assign multiple vehicle types in the assignment. The procedure is run by time of day (AM, MD, PM, and NT) and the period assignments are combined to create daily assignments.

Volume Delay Functions

The equilibrium traffic assignment procedure is dependent on the Bureau of Public Roads (BPR) volume-delay function to estimate travel speeds under congested conditions. The traditional BPR speed/volume curve is used for congested speed estimates. The BPR equation determines the change in travel as congestion is approached by relating link travel times as a function of the volume/capacity ratio.

The traditional BPR speed/volume curve and coefficients developed by the industry were based on LOS "C" capacities, with default alpha and beta coefficients of 0.15 and 4.0, respectively. Since the 2010 Model is based on LOS "E" capacities, calibration of these coefficients is necessary. Calibration for traffic assignment includes the adjustment of the volume delay function and other parameters related to congestion. It is typical for different classifications of roadways to have different congestion curves. Thus, calibration of these parameters by functional classification based on other area, national statistics, and Highway Capacity Manual method is performed.

Assignment Algorithms

The 2010 Model uses a Multi-Modal Multi-Class (MMA) user equilibrium assignment technique. Specifically, the 2010 Model uses the Bi-conjugate Frank Wolfe (BCFW) user equilibrium assignment method due to the ability for tighter convergence criteria and faster computation time.

Toll Model

The CAMPO assignment model considers toll facilities in terms of generalized cost. Fixed toll settings are included in the assignment model for all trip purposes to reflect the implications of operating and toll cost impedance. The toll costs are reflected in the model in terms of dollars and converted to time based on value of time (VOT) rates by trip purpose and peak period.

Feedback

Feedback is the iterative loop of the model stream from assignment back to trip distribution to reflect congested travel times and travel costs in trip making decisions.

Model Structure

Congestion levels within the study area are anticipated to be significant enough to alter the distribution of trips in the CAMPO region. Therefore, a feedback loop between traffic assignment and trip distribution is imple-

mented using congested travel time and costs in calculating impedance.

Convergence

Feedback implementation in the CAMPO Model is based on the method of successive averages (MSA). The feedback starts with free flow travel times and iterates the model run from trip distribution to traffic assignment with congested travel times until a set number of iterations are reached or the convergence criteria is reached. The CAMPO Model offers several feedback convergence criteria to measure feedback convergence and assumes that if the AM peak period has reached equilibrium then the remaining time periods will also have reached equilibrium.

Assignment Validation Results

This section documents the results of the traffic assignment validation. The objective of the traffic assignment validation is to produce a properly accurate and sensitive forecasting process, one that is well-suited to CAMPO's planning objectives and mission. CAMPO routinely develops travel demand forecasts for air quality conformity analyses, Transportation Improvement Program development, special studies at the level of sub-regions, corridors and activity centers and feasibility studies or environmental impact statements.

The project team's model validation activities included:

- Identifying, through extensive testing as well as comparisons against common sense expectations and observed data, data entry errors in network coding, errors in process files, and inconsistencies in observed data, and correcting for these errors.
- Adjusting model parameters to improve model performance, as measured by the model's ability to match observed data at the appropriate level of aggregation. Traffic assignment parameter adjustments included modifying the highway network volume delay functions, and changing the assignments of roadways to different volume delay functions, to improve the representation of speed, delay and path diversion.

The observed data to assess the quality of the validation come from several sources, including TxDOT's traffic count database and the Highway Performance Monitoring System. As applicable, the project team used validation guidelines from reputable sources, including the Travel Model Improvement Program Model Validation guidelines, and standards developed by the Tennessee Department of Transportation, to assess the quality of the validation. The team also compared results against the 2005 model validation effort. Overall, the project team has improved upon the model performance achieved in the 2005 validation, while retaining a high level of sensitivity.

Appendices

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Appendix G: Performance Measures

Definitions

TOD: Time of Day

AM: Morning Peak

MD: Midday

PM: Evening Peak

NT: Night

E+C: Existing plus Committed

Percent Congested by Time of Day

TOD	2010	E+C	No Build	Preferred Scenario
AM	0.70%	0.94%	13.66%	9.41%
MD	0.37%	0.53%	6.33%	4.41%
PM	1.53%	1.98%	19.86%	14.14%
NT	0.04%	0.09%	2.34%	1.30%

Vehicle Hours of Delay Per Person by Time of Day

TOD	2010	E+C	No Build	Preferred Scenario
AM	0:55	1:00	6:10	3:17
MD	1:38	1:54	4:56	3:58
PM	1:54	1:55	8:34	5:33
NT	0:21	0:30	1:49	1:22
24 HR	4:47	5:19	21:29	14:11

Vehicle Miles Traveled Per Person by Time of Day

TOD	2010	E+C	No Build	Preferred Scenario
AM	4.34	4.12	4.10	4.07
MD	9.06	8.61	8.10	8.21
PM	5.73	5.43	5.30	5.31
NT	6.02	5.69	5.48	5.54
24 HR	25.15	23.85	22.97	23.12

Average Vehicle Trip Time in Minutes by Time of Day

TOD	2010	E+C	No Build	Preferred Scenario
AM	16.02	16.07	30.59	22.86
MD	12.27	12.43	15.57	14.63
PM	13.26	13.35	18.94	16.54
NT	12.72	12.86	16.38	15.37

Average Freeway Speed by Time of Day

TOD	2010			2020/E+C		
	Toll	Non-Toll	IH-35	Toll	Non-Toll	IH-35
AM	77.07	49.82	51.93	76.34	49.66	51.85
MD	77.37	51.95	53.44	78.29	51.12	52.91
PM	76.70	43.65	46.25	74.05	44.89	48.11
NT	77.38	60.82	62.49	78.70	59.64	60.92
24 HR	77.11	51.29	53.37	76.78	51.23	53.34

Average Freeway Speed by Time of Day

TOD	No Build			Preferred Scenario		
	Toll	Non-Toll	IH-35	Toll	Non-Toll	IH-35
AM	49.57	33.85	33.71	54.12	37.28	38.15
MD	62.38	39.61	39.78	63.99	42.54	44.02
PM	40.63	27.83	27.45	44.66	31.85	32.92
NT	74.33	50.79	51.06	74.93	51.63	52.08
24 HR	53.84	37.32	37.08	57.31	40.59	41.56

Average Vehicle Trip Time to Airport (in minutes)

Time	2010	E+C	No Build	Preferred Scenario
Daily	18.23	18.25	28.63	22.30

Average Network Speed by Mode

TOD	2010			E+C		
	Auto	Bus	Rail	Auto	Bus	Rail
AM	43.71	17.67	40.90	43.17	17.15	48.36
MD	44.05	17.06	42.72	43.04	16.36	45.44
PM	39.72	17.67	40.90	39.51	17.15	48.36
NT	48.72	17.06	42.72	47.81	16.36	45.44
TOD	**No Build**			**Preferred Scenario**		
	Auto	**Bus**	**Rail**	**Auto**	**Bus**	**Rail**
AM	22.17	14.45	49.16	30.11	15.12	47.73
MD	32.75	14.36	44.27	35.53	14.62	44.06
PM	21.16	14.45	49.16	26.68	15.12	47.73
NT	38.75	14.36	44.27	41.43	14.62	44.06

Number of Trips by Mode

Mode	2010	E+C	No Build	Preferred Scenario
Auto External & Other	638,362	810,066	1,018,451	1,120,657
Truck External & Other	447,054	603,305	894,293	1,031,178
Auto: Toll	198,653	378,375	848,718	802,300
Auto: Non-Toll	3,817,054	4,885,699	8,473,150	8,543,533
Bus	103,591	138,427	180,740	181,990
Rail	3,488	7,866	11,555	10,932
Bike	33,275	144,210	226,144	222,909
Pedestrian	146,266	238,515	460,660	436,740

Average Private Cost per Trip

Mode	2010	E+C	No Build	Preferred Scenario
Auto	$4.09	$4.09	$5.34	$4.79
Transit	$19.27	$20.23	$20.99	$21.14
Bike	$5.53	$16.31	$16.61	$16.26
Pedestrian	$6.81	$8.22	$7.63	$7.74

Employment within Centers

Geography	2010		E+C		No Build		Preferred Scenario	
	Area (Sq. Miles)	Employment	Area (Sq. Miles)	Employment	Area (Sq. Miles)	Employment	Area (Sq. Miles)	Employment
Centers	96.99	205,119	96.98	297.828	96.98	554,145	96.98	554,145
Region	5386.87	774,786	5,386.87	1,144,437	5,386.87	2,324,736	5,386.87	2,324,736
% Centers	1.80%	26.47%	1.80%	26.02%	1.80%	23.84%	1.80%	23.84%

Population and % EJ Population within a ¼ and ½ Mile of Transit Stops

Transit Stops	2010				E+C			
	EJ Pop	Non-EJ Pop	Total Pop	% EJ	EJ Pop	Non-EJ Pop	Total Pop	% EJ
1/4 mile	332,259	218,079	550,338	60.37%	450,651	314,458	765,109	58.90%
1/2 mile	382,117	312,172	694,288	55.04%	527,069	479,773	1,006,842	52.35%
Region	516,957	1,200,128	1,717,086	30.11%	682,534	1,651,879	2,334,413	29.24%

Population and % EJ Population within a ¼ and ½ Mile of Transit Stops

Transit Stops	No Build				Preferred Scenario			
	EJ Pop	Non-EJ Pop	Total Pop	% EJ	EJ Pop	Non-EJ Pop	Total Pop	% EJ
1/4 mile	609,636	446,168	1,055,803	57.74%	614,000	467,545	1,081,545	56.77%
1/2 mile	721,265	689,845	1,411,109	51.11%	727,805	735,091	1,462,896	49.75%
Region	1,134,284	2,944,410	4,078,694	27.81%	1,134,284	2,944,410	4,078,694	27.81%

Square miles of Redevelopable or Vacant, Low-sensitivity Land within ¼ and ½ Mile of Fixed-guideway Transit

Buffer	2010		E+C		No Build		Preferred Scenario	
	2010 Total	2010 Redevelopable	2020 Total	2020 Redevelopable	Area (Sq. Miles)	Redev. Sq. Mi.	2040 Total	2040 Redevelopable
Quarter Mile	16.1	4.7	48.3	13.0	48.3	13.0	60.5	17.6
Half Mile	32.4	9.3	97.1	24.7	97.1	24.7	120.3	34.2
Full Region	5,304	3,688	5,304	3,688	5,304	3,688	5,304	3,688

Lane Miles of Roads and Fixed-guideway Transit Adjacent to and Intersecting Centers

	2010	E+C	No Build	Preferred Scenario
Region	1,663	1,729	1,729	1,793

Lane Miles of Roads and Fixed-guideway Transit Connecting Centers

	2010	E+C	No Build	Preferred Scenario
Region	4,065	4,408	4,408	4,690

Total Volatile Organic Compounds (VOC) Summer Season On-Road Mobile Emissions

Emission Type	2020	2040
VOC	15.31	9.14

This table is based on scenarios that do not include locally funded projects.

Total Nitrogen Oxide (NO_x) Summer Season On-Road Mobile Emissions Estimates by Year in Tons per Weekday

Emission Type	2020	2040
NO_x	23.31	11.05

This table is based on scenarios that do not include locally funded projects.

Total Greenhouse Gas (CO, CO_2, CH_4) Summer Season On-Road Mobile Emissions Estimates

Emission Type	2020	2040
CO	219.09	132.38
CO_2	27,625.25	33,682.37
CH_4	0.71	0.76

This table is based on scenarios that do not include locally funded projects.

Lane Miles Crossing Environmentally High-Sensitive Areas

Mode	2010		E+C		No Build		Preferred Scenario	
	Lane Miles	Highly Sensitive Lane Miles	Lane Miles	Highly Sensitive Lane Miles	Lane Miles	Highly Sensitive Lane Miles	Lane Miles	Highly Sensitive Lane Miles
Roads	12,428.67	17.29	13,816.38	19.89	13,816.38	19.89	15,083.15	25.51
Fixed Guideway Transit	31.78	-	97.75	0.09	97.75	0.09	123.33	0.09
Total	12,460.45	17.29	13,914.13	19.98	13,914.13	19.98	15,206.48	25.6

Ratio of EJ to Non-EJ Home-Based Work (HBW) Trips

Mode	2010		E+C		No Build		Preferred Scenario	
	Time (Min)	Distance (Mi)	Time (Min)	Distance (Mi)	Time (Min)	Distance (Mi)	Time (Min)	Distance (Mi)
EJ	15.19	10.13	15.27	10.20	23.64	11.11	22.48	11.29
Non-EJ	20.32	13.81	20.41	13.72	47.74	14.40	30.99	13.97
Ratio EJ/ Non-EJ	74.79%	73.34%	74.79%	74.34%	49.51%	77.15%	72.54%	80.82%
HBW	18.81	12.73	18.93	12.71	41.24	13.51	28.69	13.25

Miles of Improvements to High Crash Corridors

	2010	E+C	No Build	Preferred Scenario
Region	—	13	13	30

Appendix H: Congestion Management Strategies

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
ROADWAY STRATEGIES				
Increasing Number of Lanes without Roadway Widening. This takes advantage of "excess" width in the roadway cross section used for breakdown lanes or median	• Increase capacity	• Construction and engineering • Maintenance	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• TxDOT local offices • Cities
Super Street Arterials. This involves converting existing major arterials with signalized intersections into "super streets" that reduce the number of movements at the major intersections by changing the left turn movement to a right turn plus a U-turn movement.	• Increase capacity • Improve mobility	• Construction and engineering substantial • Maintenance varies based on area	Medium-term: 5 to 10 years (includes planning, engineering, and implementation)	• TxDOT • CAMPO • Cities
Roadway Widening by Adding Lanes. This is the traditional way to deal with congestion	• Increase capacity, reducing congestion in the short term • Long-term effects on congestion depend on local conditions	• Costs vary by type of highway constructed; in dense urban areas can be very expensive • Can create environmental and community impacts	Long-term: 10 or more years (includes planning, engineering, and implementation)	• TxDOT local offices • Cities
Geometric Design Improvements. This includes grade separation, widening to provide shoulders, additional turn lanes at intersections, improved sight lines, auxiliary lanes to improve merging and diverging.	• Increase mobility • Reduce congestion by improving bottlenecks • Increase traffic flow and improve safety	• Costs vary by type of design	Short-term: 1 to 5 years	• TxDOT local offices • Cities

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Innovative Intersections. This includes roundabout, restricted crossing U-turns, displaced left-turns, diverging diamond, single point urban interchange, continuous flow intersection and quadrant intersections.	• Divert left turns away and allow more green time for through traffic • Reduce the number of vehicles and/or the number of conflicting movements • Reduce delay • Improve capacity	• Cost of buying ROW property • Cost of construction • Costs vary by type of design	Medium-term: 5 to 10 years	• TxDOT local offices • Cities
Managed Lane (HOV & HOT). This increases corridor capacity while at the same time provides an incentive for single-occupant drivers to shift to ridesharing. These lanes are most effective as part of a comprehensive effort to encourage HOVs and HOTs, including publicity, outreach, park-and-ride lots, and rideshare matching services.	• Reduce Regional VMT • Reduce regional trips • Increase vehicle occupancy • Improve travel times • Increase transit use and improve bus travel times	• Separate ROW costs • Barrier separated costs • Contraflow costs • Annual operations and enforcement • Can create environmental and community impacts	Medium-term: 5 to 10 years (includes planning, engineering, and implementation)	• TxDOT local offices • CMTA • Cities

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
TRANSIT STRATEGIES				
Fare Strategies				
Reducing Transit Fares. Encourages additional transit use, to the extent that high fares are a real barrier to transit.	• Decrease daily VMT • Decrease congestion • Increase ridership	• Loss in revenue per rider • Capital costs per passenger trip • Operating costs per passenger trip • Operating subsidies needed to replace lost fare revenue • Alternative financial arrangements need to be negotiated with donor agencies	Short-term: Less than 1 year	• CMTA • CARTS • Other transit providers
Employer Incentive Programs. Encourages additional transit use through transit subsidies of mass transit fares provided by employers.	• Increase transit ridership • Decrease travel time • Decrease daily VMT	• Cost of incentives to employers offering employee benefits for transit use	Short-term: 1 to 5 years	• Employers • Workers • Transit providers
Electronic Payment Systems and Universal Fare cards. Interchangeable smartcard payment system (including RFID) that can be used as a fare payment method for multiple transit agencies throughout the region.	• Increase transit ridership • Decrease travel time	• Considerably high, but expected to decrease • Implementation costs vary based on system design and functionality	Short-term: 1 to 5 years	• CAMPO • TxDOT • CMTA • CARTS

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Operation Strategies				
Realigned Transit Service Schedules and Stop Locations. Service adjustments to better align transit service with ridership markets.	• Increase transit ridership • Decrease daily VMT	• Operating costs per trip	Short-term: 1 to 5 years	• CMTA • CARTS • Other transit providers
Intelligent Transit Stops. Ranges from kiosks, which show static transit schedules, to real-time information on schedules, locations of transit vehicles, arrival time of the vehicle, and alternative routes and modes.	• Decrease daily VMT • Decrease congestion • Increase ridership	• Capital costs per passenger	Medium-term: 5 to 10 years (includes planning, engineering, and construction)	• CMTA • CARTS
Transit Signal Priority. Often combined with dedicated rights-of-way for transit and/or bus rapid transit routes.	• Decrease travel time	• Implementation costs vary based on system design and functionality and type of equipment	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• TxDOT local offices • Cities
Enhanced Transit Amenities. Includes vehicle replacement/upgrade, which furthers the benefits of increased transit use.	• Decrease daily VMT • Decrease congestion • Increase ridership	• Capital costs • Addition of clean fuel bus fleets may be incorporated as part of regular vehicle replacement programs	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• CMTA • CARTS • Other transit providers
Capacity Strategies				
Increasing Transit Frequencies or Hours of Service. Increased frequency makes transit more attractive to use.	• Increase transit ridership • Decrease travel time • Decrease daily VMT	• Operating costs per trip • New bus purchases likely	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• CMTA • CARTS • Other transit providers

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Expanding Bus Route Coverage. Provides better transit accessibility to a greater share of the population.	• Increase transit ridership • Decrease daily VMT	• Capital costs per passenger trip • Operating costs per trip • New bus purchases likely	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• CMTA • CARTS • Other transit providers
Dedicated Rights-of-Way for Transit. Reserved travel lanes or rights-of-way for transit operations, including use of shoulders during peak periods.	• Increase transit ridership • Decrease travel time	• Costs vary by type of design	Medium-term: 5 to 10 years (includes planning, engineering, and construction)	• TxDOT local offices• Cities
Accessibility Strategies				
Express Bus Service. A fixed route service that typically provides commuter service to park-and-ride lots in suburban areas. They have limited stops, travel non-stop on highways, utilize HOV lanes, and usually only operate during peak traffic periods. These services reduce the number of single-occupant vehicles by providing an alternative to the personal car	• Increase transit ridership • Decrease daily VMT	• Operating costs per trip • New bus purchases likely	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• CMTA • CARTS
Improved Connections Between Public Transport Systems. To accommodate several modes of transportation, including intercity rail service and some or all of the following: intercity bus, commuter rail, intra-city rail transit and bus transportation, airport limousine service, bicycle and pedestrian facilities, airline ticket offices, rent- a-car facilities, taxicabs, private parking, and other transportation services.	• Increase transit ridership • Decrease daily VMT • Decrease long distance trips	• Can cost several millions of dollars depending on location, land values, and scale of the center • Link surrounding district • Support new development and employment growth	Medium-term: 5 to 10 years (includes planning, engineering, and construction)	• CAMPO • CMTA • CARTS

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Improved Bicycle and Pedestrian Facilities at Transit Stations. Includes improvements to facilities that provide access to transit stops as well as provisions for bicycles on transit vehicles and at transit stops (bicycle racks and lockers).	• Increase bicycle mode share • Decrease motorized vehicle congestion on access routes	• Capital and maintenance costs for bicycle racks and lockers	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• CMTA
BICYCLE AND PEDESTRIAN STRATEGIES				
More Sidewalks and Designated Bicycle Lanes. Enhances the visibility of bicycle and pedestrian facilities; increases the perception of safety.	• Increase mobility and access • Increase non-motorized mode shares • Separate slow-moving bicycles from motorized vehicles • Decrease incidents	• Design and construction costs for paving, striping, signals, and signing • ROW costs if widening needed • Bicycle lanes may require improvements to roadway shoulders to ensure acceptable pavement quality	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• TxDOT local offices • Cities
Improved Bicycle Facilities at Transit Stations and Other Trip Destinations. Increases safety with the addition of bicycle racks and bike lockers at transit stations and other trip destinations; additional amenities such as locker rooms with showers at workplaces provide further incentives for using bicycles.	• Increase bicycle mode share • Decrease motorized vehicle congestion on access routes	• Capital and maintenance costs for bicycle racks and lockers, locker rooms	Short-term: 1 to 5 years (includes planning, engineering, and construction)	• CMTA • CARTS
Green Lane. It refers to protected bicycle lane, such as cycle track which is physically separated from motor vehicle travel way and distinct form sidewalk.	• Increase non-motorized mode share • Decrease incidents	• Capital costs of separated barrier	Medium-term: 5 to 10 years (includes planning, engineering, and construction)	• TxDOT local offices • Cities

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Design Guidelines for Pedestrian-Oriented Development. Encourages pedestrian activity through the use of design guidelines (i.e., maximum block lengths, building setback restrictions, and streetscape enhancements).	• Increase pedestrian mode share • Discourage motor vehicle use for short trips • Decrease VMT • Decrease emissions	• Capital costs largely borne by private sector; developer incentives may be needed • Public sector may be responsible for some capital and/or maintenance costs associated with right-of-way improvements • Ordinance development and enforcement costs	Short-term: 1 to 5 years	• TxDOT• Cities
Improved Safety of Existing Bicycle and Pedestrian Facilities. Increases safety by maintaining lighting, signing, striping, traffic control devices, pavement quality; installing curb cuts and extensions, median refuges, and raised crosswalks.	• Increase non-motorized mode share • Decrease incidents	• Capital costs of sidewalk improvements and additional traffic control devices	Short-term: 1 to 5 years	• TxDOT local offices • Cities • CMTA • CARTS
Exclusive Non-Motorized Rights-of-Way. Use abandoned rail rights-of-way and existing parkland for medium- to long-distance bike trails, improving safety and reducing travel times.	• Increase mobility • Increase non-motorized modes • Decrease congestion on nearby roads • Separate slow-moving bicycles from motorized vehicles •Decrease incidents	• Right-of-way costs • Construction and engineering costs • Maintenance costs	Medium-term: 5 to 10 years (includes planning, engineering, and construction)	• TxDOT local offices • Cities

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Bike Sharing Programs. Short-term bicycle rental program supported by a network of automated rental stations.	• Increase non-motorized mode share • Discourage motor vehicle use for short trips • Decrease VMT	• Capital and maintenance costs for bicycles and rental stations	Short-term: 1 to 5 years	• Cities • CMTA • CARTS
Improved Wayfinding. This encourages more walk and bike trips by, especially for elderly and children.	• Increase walk and bike trips • Decrease in short distance trip	• Public costs to set up and monitor appropriate ordinances • Economic incentives used to encourage developer buy-in	Long-term: 10 or more years	• Cities • CMTA • CARTS
Improved Connectivity and Continuity. Provide continuous bicycle and pedestrian facilities connected to different destination.	• Increase walk and bike trips • Decrease in short distance trip	• Cost of construction • Cost of ROW issue	Medium-term: 5 to 10 years	• Cities • CMTA • CARTS

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
ACCESS MANAGEMENT STRATEGIES				
Curb Cut and Driveway Restrictions. Limits turning vehicles, which can impede traffic flow and are more likely to be involved in crashes.	• Increase capacity, efficiency on arterials • Improve mobility on facility • Improve travel times and decrease delay for through traffic • Decrease incidents	• Implementation and maintenance costs vary; range from new signing and striping to more costly permanent median barriers and curbs	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• TxDOT local offices • Cities
Turn Lanes and New, Shared, or Relocated Driveways and Exit Ramps. In some situations, increasing or modifying access to a property can be more beneficial than reducing access.	• Increase capacity, efficiency • Improve mobility and safety on facility • Improve travel times and decreased delay for all traffic	• Additional right-of way costs • Design, construction, and maintenance costs	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• TxDOT local offices • Cities
Minimum Intersection/Interchange Spacing. Decreases number of conflict points and merging areas, which in turn decreases incidents and delays.	• Increase capacity, efficiency • Improve mobility on facility • Improve travel times and decrease delay for through traffic •Decrease incidents	• Part of design costs for new facilities and reconstruction projects	Medium-term: 5 to 10 years (includes planning, engineering, and implementation)	• TxDOT local offices• Cities
Queue Warning. Commuters can be warned about downstream stop-and-go conditions with signs and flashing lights.	• Reduce the number of crashes • Delay the onset of congestion	• Design and implementation costs varies	Short-term: 1 to 5 years	• TxDOT local offices

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Frontage Roads and Collector-Distributor Roads. Directs local traffic to major intersections on both super arterials and freeways (parallel frontage roads); Separate exiting, merging, and weaving traffic from through traffic at closely spaced interchanges (collector distributor).	• Increase capacity, efficiency • Improve mobility on facility • Improve travel times and decreased delay for through traffic • Decrease incidents due to fewer conflict points	• Additional right-of way costs • Design, construction, and maintenance costs	Medium-term: 5 to 10 years (includes planning, engineering, and implementation)	• TxDOT local offices • Cities
Roadway Restrictions. Closes access during rush hours (AM and PM peak hours) and aids in the increase of safety levels through the prevention of crashes at problem intersections; this measure may be effective along mainline segments of a highway, which operate at poor service levels.	• Increase capacity, efficiency on arterials • Improve mobility on facility • Improve travel times and decrease delay for through traffic • Decrease incidents	• Implementation and maintenance costs vary	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• TxDOT local offices • Cities
Ramp Flow Control. Special traffic signals on the freeway entrance ramps turn green in short intervals (one or two seconds) to release vehicles onto the freeway in a smooth, orderly manner.	• Decrease incidents • Avoid crowd entrance	• Implementation and maintenance costs vary	Short-term: 1 to 5 years	• TxDOT local offices • Cities
Access Control to Available Development Sites. Coordination of access points to available development sites allows for less interference in traffic flow during construction and/or operation of new developments.	• Increase capacity, efficiency on arterials • Improve mobility on facility • Improve travel times and decrease delay for through traffic • Decrease incidents	• Implementation and maintenance costs vary	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• Cities

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
TRANSPORTATION SYSTEM MANAGEMENT AND INTELLIGENT TRANSPORTATION SYSTEM				
Highway/Freeway Operation				
Reversible Traffic Lanes. Appropriate where traffic flow is highly directional.	• Increase peak direction capacity • Decrease peak travel times • Improve mobility	• Barrier separated costs per mile • Operation costs per mile • Maintenance costs varies	Short-term: 1 to 5 years	• TxDOT • Cities • Police departments
Ramp Metering. Regulates the rate and spacing of traffic entering the freeway, allowing freeways to operate at their optimal flow rates.	• Decrease travel time • Decrease crashes • Improve traffic flow on major facilities	• O&M costs • High costs associated with enhancements to centralized control system • Capital costs for meters, sensors, and communication equipment	Medium-term: 5 to 10 years	• TxDOT
Freeway Incident Detection and Management Systems. Typically includes video monitoring, incident detection, dispatch systems, and emergency response to alleviate nonrecurring congestion.	• Decrease crash delay • Decrease travel time • Decrease VHT and PHT	• Capital costs varies and substantial • Annual operating and maintenance costs	Medium- to long-term: 10 years or more	• TxDOT • CAMPO

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Service Patrols. Service vehicles patrol heavily traveled segments and congested sections of the freeways that are prone to incidents to provide faster and anticipatory responses to traffic incidents and disabled vehicles.	• Reduce incident duration time • Restore full freeway capacity • Reduce the risks of secondary crashes to motorists	• Costs vary based on the number of vehicles used by the patrol, number of routes that the patrol operates, and the population of the area in which the program operates	Short-term: 1 to 5 years	• TxDOT• CAMPO
Arterial and Local Roads Operation				
Traffic Signal Coordination. Optimizes traffic flow and reduces emissions by minimizing stops on arterial streets.	• Improve travel time • Decrease the number of stops • Decrease VMT, VHD and PHT by vehicle miles per day, depending on program	• O&M costs per signal • Signalized intersections per mile costs varies	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• TxDOT • CAMPO
Restricting Turns at Key Intersections. Limits turning vehicles, which can impede traffic flow and are more likely to be involved in crashes.	• Increase capacity, efficiency on arterials • Improve mobility on facility • Improve travel times and decrease delay for through traffic • Decrease incidents	• Implementation and maintenance costs vary; range from new signing and striping to more costly permanent median barriers and curbs	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• Cities • Police departments
Converting Streets to One-Way Operations. Establishes pairs of one-way streets in place of two-way operations. Most effective in downtown or very heavily congested areas.	• Increase traffic flow	• Conversion costs include adjustments to traffic signals, striping, signing and parking meters • May create some confusion, especially for nonlocal residents	Short-term: 1 to 5 years (includes planning, engineering, and implementation)	• Cities • Police departments

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
ITS Strategies				
ITS Performance Measurement. Performance measurement is the use of statistical evidence to determine progress toward specific defined organizational objectives. This includes both evidence of actual fact, such as measurement of pavement surface smoothness, and measurement of customer perception such as would be accomplished through a customer satisfaction survey.	• Provide the greatest opportunity to share resources in the collection of data needed to support mobility performance measures • Evaluate the benefits of providing ITS and are typically a mix of output measures and operational-related outcome measures	• Performance measure program costs are minimal, primarily annual data gathering, analysis, and reporting.	Short-term: 1 to 5 years	• TxDOT • CAMPO
Traveler Information Systems. Provides travelers with real-time information, such as incidents, speed and travel time estimates, that can be used to make trip and route choice decisions; Information accessible on the web, dynamic message signs, 511 systems, Highway Advisory Radio (HAR), or handheld wireless devices.	• Decrease travel times and delay • Some peak-period travel and mode shift	• Design and implementation costs varies • Operating and maintenance costs varies	Medium-term: 5 to 10 years	• TxDOT • CMTA • CARTS • CAMPO • Private companies
System Modification				
Bottleneck Removal. Correctly identifying and removing the causes of slowdowns from interchanges can dramatically reduce congestion on an entire road. Common bottleneck solutions include adding lanes for a short section by reducing lane widths or using shoulders, adding lanes to accommodate entering and exiting traffic, or modifying ramps.	• Reduce congestion on entire road	• Design and implementation costs varies	Short-term: 1 to 5 years	• TxDOT • Cities

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Acceleration/Deceleration Lanes. These extra entrance and exit lanes provide drivers with an opportunity to speed up or slow down when entering or exiting a freeway without interfering with the main traffic flow.	• Increase safety and speed • Reduce incidents	• Design and implementation costs varies • Operating and maintenance costs varies	Medium-term: 5 to 10 years	• TxDOT local offices • Cities
Freight Rail Improvements. New freight rail construction and relocation can consolidate freight movement and remove long-distance truck traffic from congested corridors.	• Improve safety • Increase travel speed	• Costs to build and relocate rail are substantial.	Long-term: 10 or more years	• CAMPO • TxDOT • Private operators
Ramp Configurations. Agencies can relocate ramps to change traffic patterns and alter the way that entering traffic merges on to main lanes.	• Reduce congestion • Improve safety	• Costs to relocate ramp are substantial.	Medium-term: 5 to 10 years	• TxDOT local offices • Cities
Complete Streets. It is designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. A Complete Street may include: sidewalks, bike lanes, special bus lanes, comfortable and accessible public transportation stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, roundabouts, and more.	• Increase public transport ridership • Decrease short trips	• Policy and ordinance support are needed • Economic incentives used to encourage developer buy-in	Long-term: 10 or more years	• CMTA • Cities • Chambers of Commerce

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Improving Street Continuity. The mobility provided by a roadway system is affected by its street continuity.	• Increased speeds • Delay reduction, if improving a bottleneck • Increase safety	• Improving continuity on a major roadway is usually incorporated into a major reconstruction project and therefore expensive. • Minor roadways, sidewalks, and bicycle lanes can be improved at a moderate cost.	Long-term: 10 or more years	• TxDOT local offices • Cities
Commercial Vehicle Accommodations. In areas with high truck traffic volume, several projects and programs can reduce congestion caused by trucks and increase freight efficiency and safety. The common techniques include improving shoulder width and strength, turning radii, parking, acceleration/deceleration lanes, or even physically separating truck and car traffic.	• Improve safety and operation of roadway	• Costs are medium	Short-term: 1 to 5 years	• TxDOT local offices • Cities

Congestion Management Strategies (continued)

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
OTHER OPERATION STRATEGIES				
Targeted and Sustained Enforcement of Traffic Regulations. Improves traffic flow by reducing violations that cause delays; Includes automated enforcement (e.g., red light cameras).	• Improve travel time • Decrease the number of stops	• Increased labor costs per officer	Short-term: 1 to 5 years	• TxDOT • Cities
Special Events and Work Zone Management. Includes a suite of strategies, including temporary traffic control, public awareness and motorist information, and traffic operations.	• Minimize traffic delays • Improve mobility • Maintain access for businesses and residents	• Design and implementation costs varies	Short-term: 1 to 5 years	• Cities • Urban business districts • Chambers of commerce
Speed Harmonization. Agencies use an expert system to monitor data coming from field deployed sensors on a roadway and automatically adjust speed limits when congestion thresholds are exceeded and congestion and queue formation are imminent.	• Increased throughput • Decrease in primary incidents • Decrease in incident severity • More uniform speeds • Decreased headways • More uniform driver behavior • Increase trip reliability • Delay onset of freeway breakdown	• The costs of installation speed harmonization within a corridor varies considerably depending on the existing infrastructure and the selection and spacing of overhead gantries, DMS, and other related signing.	Medium-term: 5 to 10 years	• TxDOT • CAMPO
Road Weather Management. Identifying weather and road surface problems and rapidly targeting responses, including advisory information, control measures, and treatment strategies.	• Improve safety due to reduced crash risk • Increased mobility due to restored capacity, delay reductions, and more uniform traffic flow	• Design and implementation costs varies • Operating and maintenance costs varies	Short-term: 1 to 5 years	• TxDOT • CAMPO

Strategy	Congestion and Mobility Benefits	Implementation Costs and Other Impacts	Implementation Timeframe	Partners
Traffic Surveillance, Control Systems, and Active Traffic Management. Often housed within a Traffic Management Center (TMC), monitors volume and flow of traffic by a system of sensors, and further analyzes traffic conditions to flag developing problems, and implement adjustments to traffic signal timing sequences, in order to optimize traffic flow estimating traffic parameters in real-time. Currently, the dominant technology traffic surveillance is that of magnetic loop detectors, which are buried underneath roadways and count automobiles passing over them. Video monitoring systems for traffic surveillance may provide vehicle classifications, travel times, lane changes, rapid accelerations or decelerations, and length queues at urban intersections, in addition to vehicle counts and speeds.	• Decrease travel times and delay • Some peak-period travel and mode shift	• Design and implementation costs varies • Installation of video surveillance cameras may be less expensive than magnetic loop detectors, which require disruption and digging of the road surface	Medium-term: 5 to 10 years	• TxDOT • CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Appendix I: Financial Forecast

The financial resources for the CAMPO *2040 Regional Transportation Plan* includes federal, regional, state, and local funds. The plan relies on the best knowledge available at the time the document was prepared.

State Highway Funding

The Texas Department of Transportation (TxDOT) disperses transportation funding in Texas from the State Highway Fund. These funds are divided among twelve different funding categories as shown in Table 37. (Source: Texas Administrative Code – Rule 16.153)

Revenue Forecasting Tools

The Texas A&M Transportation Institute has prepared a financial forecasting tool to aid the 25 Texas MPOs. The tool allows the user to forecast revenues based on assumptions regarding statewide transportation needs, population growth rates, fuel efficiency, inflation rates, taxes, fees, and other elements. It forecasts funding in categories 2, 7, 9, and 11. The CAMPO Technical Advisory Committee formed a subcommittee that evaluated several different financing scenarios. The scenario used for the *2040 Plan* is based on an increase in the vehicle registration fee in 2020 and in 2030.

The forecast for the funding categories not included in the Transportation Revenue Estimator and Needs Determination System (TRENDS) model was found in TxDOT's 2014 Unified Transportation Program: 2014-2023. This document provides a forecast for all TxDOT funding categories. TxDOT provided information over the life of the plan. Categories 1, 6, and 8 make up the Preservation Funding category in the table presented. Category 12 funds are listed as "Other TxDOT Mobility Funding."

As this document was being prepared, the State conducted an election on a state constitutional amendment to allow for the diversion of funds intended for the Economic Stabilization Fund (known as the Rainy Day Fund) to the State Highway Fund. This proposition passed by a margin of four to one on November 4, 2014. The first dispersal was set for early- to mid-2015. The CAMPO region is anticipated to receive approximately $100 million per year, subject to the state maintaining a sufficient balance in the Economic Stabilization Fund.

Regional Funding Sources

The capital area transportation system is also funded through regional sources. These are the Central Texas Regional Mobility Authority (CTRMA) and the Lone Star Rail District. The Central Texas Regional Mobility Authority was formed in 2002. They have the authority to issue bonds

Table 37: Texas State Highway Fund Categories

	Eligible Funding Categories
1	Preventive Maintenance and Rehabilitation
2	Metro and Urban Area Corridor Projects
3	Non-Traditionally Funded Transportation Projects
4	Statewide Connectivity Corridor Projects
5	Congestion Mitigation and Air Quality Improvement
6	Structure Replacement and Rehabilitation
7	Metropolitan Mobility and Rehabilitation
8	Safety
9	Transportation Alternatives
10	Supplemental Transportation Projects
11	District Discretionary
12	Strategic Priority

and can build any transportation infrastructure. So far CTRMA has constructed toll roads, a local road, and several shared-use paths. CTRMA provided a forecast for income to construct new projects during the life of the plan.

As CTRMA was initiating the MoPac Improvement Project, CAMPO provided funding to allow this project to move quickly into construction on this highly congested road. In return, CTRMA is paying back CAMPO via the Regional Infrastructure Fund (RIF). Starting in 2017, CTRMA will deposit funds in its RIF account and will distribute funds at CAMPO's discretion to eligible transportation projects.

The Lone Star Rail District (LSRD) was formed in 2002 with the objective of operating passenger rail between Austin and San Antonio via the MoPac line. This line is currently owned and operated by Union Pacific Railroad (UPRR). In order for passenger rail to operate on this line, UPRR would need to relocate their freight line. The current line has two ninety-degree turns in it and a large number of at-grade crossings. They have expressed preliminary interest in moving their line east to a corridor without the sharp turns and with fewer at-grade crossings. LSRD provided revenue forecast for their project that is based on federal and state funding as well as funding from UPRR, operating revenues, and Tax Increment Financing (TIF) revenues. LSRD is working with local jurisdictions to set up TIF districts around proposed stations in order to capture the tax revenue collected on improvements in the district that may occur due to the new regional rail line. The project is in the planning areas of both the Austin and San Antonio MPOs. The funds for the portion in the Austin area are included in this analysis.

Transit Funding Sources

Federal transit funding comes in several different categories. The main categories are allocated to urbanized areas via Federal Transit Administration (FTA) 5307 (Urbanized Area Formula Funding Program) and FTA 5340 (Growing States/High Density Formula Program). The qualifying urbanized areas in CAMPO are Austin and San Marcos. Rural transit is provided by CARTS. In addition, CARTS provides urban service to San Marcos and Bastrop. Round Rock is a direct recipient of federal transit funds and provides its own service. Capital Metro and CARTS provided the funding forecasts for the federal funding categories for these services. Federal transportation legislation now includes a separate fund for buses and bus facilities. The forecast for this category was developed by taking the FY2013 amount and assuming that amount will continue for the life of the plan.

Transit is also financed with local funding sources. Capital Metro is funded in part by a one percent sales tax from its member cities: Austin, Jonestown, Lago Vista, Leander, Manor, Point Venture, San Leanna, Volente, and portions of Travis County and Williamson County. Capital Metro and CARTS are also funded by fares, revenue from contract services, and Capital Metro collects freight fees on local rail lines they own.

Federal funding to provide public transportation services to the elderly and disabled (FTA 5310) also comes to the capital area. The forecast for this category was developed by taking the figures from the *2035 Plan* for the years 2015-2035 and then repeating the 2035 amount through 2040.

Local Funding

As federal funds have decreased for transportation system investments, local jurisdictions have increased their share of transportation system spending. The CAMPO member jurisdictions were asked to provide a financial forecast for the life of the plan. Local funding sources for transportation spending include municipal bonds, general funds, the State Infrastructure Bank, Transportation Reinvestment Zones, and developer financing. Bastrop, Caldwell, Hays, Travis, and Williamson Counties provided revenue forecasts for the plan. The forecast for Burnet

Table 38: Financial Forecasting Sources by Jurisdiction Type

Revenue Forecast Source/Methodology	
Information Provided by Jurisdiction	City of Austin City of Bastrop City of Elgin City of Georgetown City of Hutto City of Lakeway City of Leander City of San Marcos City of Smithville
Extended 2035 Forecast	City of Bee Cave City of Cedar Park* City of Kyle City of Lockhart City of Manor City of Pflugerville City of Round Rock* City of Taylor City of Westlake Hills
Per Capita Calculation	City of Burnet City of Marble Falls

** City requested this forecast methodology*

County was developed by using a per capita estimate based on Bastrop County's figure.

Table 38 describes the different forecast sources for the local jurisdictions in the CAMPO area.

For those jurisdictions that did not provide an updated financial forecast, the 2035 forecast was used with the 2035 amount repeated for years 2036-2040. For those jurisdictions new to CAMPO since the *2035 Plan*, a per capita figure was calculated based on jurisdictions of a similar size and type.

2040 Plan Project Costs

Project sponsors generally provided project cost estimates. CAMPO assigned costs to projects when costs were not provided using calculations developed by the City of Austin and Travis County. Adjustments were made for rural roads (such as not including curbs). Staff assumed that costs were in 2015 dollars. Staff estimated costs for the year of expenditure using a 4 percent annual rate of inflation. TxDOT and other member jurisdictions use this rate (note that highways do not follow this process, as the sponsoring jurisdiction is required to provide all costs for highways).

Estimated costs for the plan include:

- Added capacity projects (all transportation modes); and,
- Operations and maintenance.

Appendix J: Parks, Refuge, and Habitat Preservation

City of Austin Water Quality Protection Lands:

The City of Austin Water Quality Protection Lands program purchases land, in both fee title and conservation easement, in the Barton Springs contributing and recharge zone section of the Edwards Aquifer. Its goal is to ensure the preservation and safety of the City of Austin's water supply. For additional information on the City of Austin Water Quality Protection Lands please visit: *www.austintexas.gov/department/water-quality-protection-land*

Balcones Canyonlands Preserve:

The City of Austin, Travis County and Lower Colorado River Authority serve as managing partners for the Balcones Canyonlands Preserve. Additional organizations, including the Travis Audubon Authority, the Nature Conservancy of Texas, and private land owners own and manage the Preserve's land. The Preserve comprises multiple tracts of land to form a system of preserves; the goal is to set aside a minimum of 30,428 acres in western Travis County. This land will serve as habitat for eight endangered species and 27 species of concern, and will act to protect the area's karst features. For additional information on the Balcones Canyonlands Preserve please visit: *www.austintexas.gov/department/balcones-canyonlands-preserve-bcp* and *www.traviscountytx.gov/thr/bccp*

Balcones Canyonlands National Wildlife Refuge:

The U.S. Fish and Wildlife Service manages the Balcones Canyonlands National Wildlife Refuge. Combined with the Balcones Canyonlands Preserve, it protects multiple endangered species and species of concern, as well as the region's karst features. For additional information on the Balcones Canyonlands National Wildlife Refuge please visit: *www.fws.gov/refuge/balcones_canyonlands/*

Lost Pines Habitat Conservation Plan:

The Lost Pines Habitat Conservation Plan (LPHCP) covers approximately 124,000 acres in northeastern Bastrop County. The LPHCP pairs with an Incidental Take Permit under the Endangered Species Act (ESA). This permit allows Bastrop County to award certificates of participation to landowners that are engaging in legal land development. Landowners can participate in the LPHCP in various ways. Participation in the LPHCP ensures compliance with the Endangered Species Act. For additional information on the LPHCP please visit: *http://www.bastropcountytexas.gov/default.aspx?name=ds.lost_pines*

Williamson County Regional Habitat Conservation Plan:

Williamson County established the Williamson County Regional Habitat Conservation Plan (RHCP) to protect its ESA-listed species. As one of the fastest growing counties in

the nation, Williamson County recognized the value of a regional approach to balancing the needs of both development and conservation. The entire County is covered by the RHCP. The RHCP supports an Incidental Take Permit, allowing limited impacts to the area's listed species if the landowner implements specific conservation and management actions. For additional information on the RHCP please visit: www.wilco.org/wccf

Edwards Aquifer Habitat Conservation Plan:

The City of San Marcos (and seven additional partners) is a member of the Edwards Aquifer Habitat Conservation Plan (HCP). The HCP assures that suitable habitat for species covered by the ESA will remain in both the San Marcos and Comal Springs areas, even in the event of lawful development activities within the region. Projects outlined in the HCP fit into three categories: Habitat Protection, Flow Protection, and Supporting Measures. Participation in the HCP allows the land developer to apply for an Incidental Take Permit under the ESA. For additional information on the HCP please visit: www.eahcp.org

Appendix K: CAMPO 2010 Model Environmental Justice Travel Time Analysis

AM Peak	2010						
	0-5 Min	5-10 Min	10-15 Min	15-20 Min	20-25 Min	25-30 Min	0-30 Min
TAZ	Bastrop County						
EJ 1192	14.12	68.64	142.73	241.88	310.22	234.51	1,012.10
Non-EJ 1371	14.25	63.31	134.43	237.37	291.01	225.09	965.46
EJ 1217	29.16	103.91	157.41	213.26	280.73	328.79	1,113.26
Non-EJ 1223	30.32	103.84	154.44	219.25	283.75	334.80	1,126.40
TAZ	Burnet County						
EJ 2012	12.85	47.32	89.94	174.95	152.93	168.27	646.26
Non-EJ 2015	13.09	46.93	99.25	158.58	193.41	194.49	705.75
TAZ	Caldwell County						
EJ 1293	21.38	95.02	168.96	230.03	267.90	305.21	1,088.50
Non-EJ 1298	24.15	96.76	175.04	234.43	264.43	295.11	1,089.92
TAZ	Hays County						
EJ 590	10.09	55.90	108.46	183.51	263.85	347.80	969.61
Non-EJ 829	17.44	65.36	133.34	202.73	289.07	343.66	1,051.60
EJ 921	14.54	75.31	110.98	142.52	169.49	212.00	724.84
Non-EJ 739	12.88	70.25	120.68	146.53	177.21	217.75	745.30
TAZ	Travis County						
EJ 302	16.28	61.92	163.01	250.46	355.81	466.00	1,313.48
Non-EJ 226	18.93	78.32	160.82	267.70	359.72	460.79	1,346.28
EJ 457	12.92	66.67	157.19	230.48	284.37	424.82	1,176.45
Non-EJ 477	10.38	54.79	146.49	224.03	279.99	412.95	1,128.63
TAZ	Williamson County						
EJ 125	16.35	65.76	164.06	240.48	325.64	392.67	1,204.96
Non-EJ 123	12.20	72.27	175.27	249.88	320.07	412.22	1,241.91
EJ 854	21.88	82.22	129.38	188.18	256.78	367.39	1,045.83
Non-EJ 1866	21.78	86.13	137.75	202.02	268.19	385.34	1,101.21

AM Peak	2020						
	0-5 Min	5-10 Min	10-15 Min	15-20 Min	20-25 Min	25-30 Min	0-30 Min
TAZ	Bastrop County						
EJ 1192	12.23	64.43	132.18	221.16	280.38	231.86	942.24
Non-EJ 1371	13.02	58.90	125.48	217.35	272.39	209.17	896.31
EJ 1217	22.74	90.30	137.88	202.42	255.35	319.43	1,028.12
Non-EJ 1223	23.49	89.55	138.00	208.13	258.92	327.81	1,045.90
TAZ	Burnet County						
EJ 2012	12.84	47.16	89.92	191.06	157.15	175.34	673.47
Non-EJ 2015	13.08	46.69	98.97	160.27	201.21	200.44	720.66
TAZ	Caldwell County						
EJ 1293	20.19	89.56	225.78	270.91	304.68	336.69	1,247.81
Non-EJ 1298	21.67	91.58	208.81	271.86	298.67	327.47	1,220.06
TAZ	Hays County						
EJ 590	10.06	57.07	100.48	176.22	262.57	335.91	942.31
Non-EJ 829	13.15	50.46	118.05	180.55	260.67	344.40	967.28
EJ 921	11.16	65.68	114.63	113.70	142.32	185.89	633.38
Non-EJ 739	8.71	53.70	122.38	117.03	144.89	187.91	634.62
TAZ	Travis County						
EJ 302	15.56	68.64	155.71	243.92	351.28	471.72	1,306.83
Non-EJ 226	20.73	79.31	156.19	244.77	341.03	464.00	1,306.03
EJ 457	9.98	58.64	150.30	224.70	258.94	378.94	1,081.50
Non-EJ 477	7.76	49.13	137.81	219.41	378.02	249.33	1,041.46
TAZ	Williamson County						
EJ 125	11.29	49.02	118.13	220.39	323.26	387.05	1,109.14
Non-EJ 123	9.92	54.96	140.91	232.42	403.92	338.77	1,180.90
EJ 854	17.96	74.48	122.63	165.16	251.01	361.05	992.29
Non-EJ 1866	19.44	85.24	137.02	192.14	275.14	394.99	1,103.97

AM Peak	2040						
	0-5 Min	5-10 Min	10-15 Min	15-20 Min	20-25 Min	25-30 Min	0-30 Min
TAZ	Bastrop County						
EJ 1192	12.01	69.26	151.75	254.39	325.32	292.07	1,104.80
Non-EJ 1371	10.17	58.71	134.94	243.52	303.57	279.82	1,030.73
EJ 1217	21.63	99.36	161.10	241.21	310.38	405.01	1,238.69
Non-EJ 1223	24.01	99.81	164.50	244.18	316.22	417.53	1,266.25
TAZ	Burnet County						
EJ 2012	12.84	47.18	89.10	182.54	148.44	163.99	644.09
Non-EJ 2015	13.08	46.72	99.06	155.42	196.73	188.77	699.78
TAZ	Caldwell County						
EJ 1293	23.50	104.77	229.21	291.97	368.77	343.96	1,362.18
Non-EJ 1298	21.44	96.27	224.67	283.95	353.46	321.06	1,300.85
TAZ	Hays County						
EJ 590	10.12	53.88	117.24	203.64	405.33	323.62	1,113.83
Non-EJ 829	17.32	62.92	152.40	258.35	369.17	374.21	1,234.37
EJ 921	13.92	71.74	134.28	154.99	201.76	257.73	834.42
Non-EJ 739	15.96	71.68	135.32	156.25	264.31	206.91	850.43
TAZ	Travis County						
EJ 302	13.72	77.85	185.34	280.43	417.71	524.54	1,499.59
Non-EJ 226	23.55	89.55	191.98	296.27	406.54	537.80	1,545.69
EJ 457	18.19	99.54	229.82	318.35	438.02	541.23	1,645.15
Non-EJ 477	13.08	80.95	208.00	326.58	534.87	412.03	1,575.51
TAZ	Williamson County						
EJ 125	11.71	71.76	169.86	280.14	382.75	482.03	1,398.25
Non-EJ 123	16.45	83.60	198.97	307.23	410.80	500.22	1,517.27
EJ 854	14.21	71.12	124.91	203.15	322.08	441.31	1,176.78
Non-EJ 1866	14.61	83.86	159.70	249.22	485.48	381.03	1,373.90

2040 PLAN

GET INVOLVED – GET MOVING

CAMPO

505 Barton Springs Rd
Suite 700
Austin, Texas 78704
Phone 512.974.2275
Fax 512.974.6385
www.campotexas.org
Email campo@campotexas.org